

# **Database of Irish Lepidoptera.**

## **1 - Macrohabitats, microsites and traits of Noctuidae and butterflies**



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Database of Irish Lepidoptera.

1 - Macrohabitats, microsites and traits of Noctuidae  
and butterflies

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## CONTENTS

CONTENTS .....	1
ACKNOWLEDGEMENTS .....	1
INTRODUCTION .....	2
The concept of the database .....	2
The structure of the database.....	2
Uses of the database .....	2
Irish Lepidoptera.....	3
The selection of lepidopteran groups for databasing .....	4
MACROHABITATS PREFERENCES OF IRISH LEPIDOPTERA.....	8
Introduction .....	8
Summary table .....	8
Macrohabitat classification .....	12
MICROSITE PREFERENCES OF IRISH LEPIDOPTERA.....	24
Larval Activity Zone Summary table .....	24
Larval Activity Zone Explanations .....	27
Hibernation / Overwintering Zone.....	31
Soil / Water Conditions.....	33
Oviposition Site .....	34
TRAITS OF IRISH LEPIDOPTERA .....	35
Introduction .....	35
Summary table .....	35
Lepidoptera trait definitions.....	38
SPECIES ACCOUNTS OF IRISH BUTTERFLIES (RHOPALOCERA) .....	42
Introduction .....	42
Species Accounts.....	45
SPECIES ACCOUNTS OF IRISH NOCTUIDAE.....	89
Introduction .....	89
Species Accounts.....	91
BIBLIOGRAPHY & RELEVANT LITERATURE .....	314



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## INTRODUCTION

### The concept of the database

Invertebrates are a major component of Irish biodiversity. There are many thousands of species, compared to fewer than 1000 native vascular plant species and fewer than 500 native vertebrate species. Species lists of invertebrates have the potential to be important tools in biodiversity assessments, ranging from assessments of the nature conservation importance of particular sites to large-scale studies across many sites. However, the majority of invertebrate species are poorly known and information is not readily accessible, causing difficulties in the interpretation of the ecological significance of patterns of species occurrence. The purpose of this database is to provide information on the habitat preferences and life history of Irish butterflies and moths in a standardised format, which can be used to interpret species lists. This database is based on a model developed in databases of European hoverflies (Diptera, Syrphidae; updated annually, most recent version Speight *et al.*, 2008) and gastropod molluscs (Falkner *et al.*, 2001). Similar databases are in preparation for snail-killing flies (Diptera, Sciomyzidae) and spiders (Aranae). The hoverfly database (Syrph The Net) has been highlighted as a model for invertebrate assessments in the *European Strategy for the conservation of invertebrates* (Haslett, 2007).

### The structure of the database

This database contains species accounts of all resident Irish butterflies and Noctuid moths describing their habitat preferences, traits and status as well as three spreadsheets in which the macrohabitat and microsite preferences and traits of each species are coded. We have developed macrohabitat, microsite and trait classifications for this purpose and definitions of each macrohabitat, microsite and trait category are included. The coding is based on information from both published and unpublished sources: published sources are referred to in the species accounts while the unpublished information is largely the personal knowledge of the senior author. The spreadsheets use a four-point coding system (0-3) that represents the degree of association with each habitat or trait.

### Uses of the database

The database provides a tool that can be used to interrogate the macrohabitat and microsite preferences and traits of Irish Noctuid moths and butterflies. This can be used to identify species with particular habitat preferences and/or traits in order to interpret the results of ecological research (see, for example, Ouin *et al.*, 2006 and Gittings *et al.*, 2007 for examples of this approach using the Syrph The Net database). There is no single correct method of using the database but there are some methods that have been developed specifically for use with these types of databases.

One of the principal uses of the database is in site biodiversity assessments. The database can be used to predict the expected fauna of a site based on the macrohabitats present. The actual fauna can then be compared to the predicted fauna. A site with a high representation of the predicted fauna can be considered to have a high biodiversity maintenance function for that fauna and to



have habitats that are in good condition. Habitats that have a low representation of the predicted fauna can be considered to be underperforming in terms of their biodiversity maintenance function. Further investigation can then be carried out using the microsites spreadsheet by comparing the expected and observed representation of species in each microsite. Identification of underperforming microsites in this way can lead to identification of management impacts that are affecting the biodiversity of the site: for example, an under-representation of species associated with tall herbs and tussocks in grassland habitats may reflect grazing impacts. Examples of this type of use of the Syrph The Net database are given by Speight & Castella (2001).

Another use of the database in biodiversity assessments is in the identification of habitat specialists. Species confined to particular habitats (e.g., wetland specialists) or species that only occur in semi-natural habitats (anthropophobic species; *sensu* Speight & Castella, 2001) can be identified by simple manipulations of the macrohabitat spreadsheet. Numbers of habitat specialist species may be more useful indicators of biodiversity than overall species richness as these are species that are dependent upon particular habitats for their local persistence and are, therefore, particularly sensitive to habitat loss or modification.

There are many other potential uses of the database that have been demonstrated through the use of the Syrph The Net database (see Speight, in prep.).

### Irish Lepidoptera

Butterflies and moths (Lepidoptera) are one of the most diverse insect orders. They have a holometabolous life-cycle involving the four stages of egg-caterpillar-pupa-adult. The caterpillars are characterised by a hardened head capsule, chewing mouthparts, and a soft body with three pairs of true legs, and up to another five pairs of prolegs. The caterpillars of most species are herbivorous (plant-feeding) and are often very specialised, requiring particular plant species growing under particular environmental conditions. Apart from a few species with wingless females, the adults have two pairs of wings that are usually covered in tiny scales, and long antennae. Most adults are nectar feeders with sucking mouthparts.

A total of 1454 species of butterflies and moths have been recorded in Ireland (Table 1; Bond *et al.*, 2006). These are divided into 53 different families. Lepidoptera are conventionally divided into three groups, butterflies, macro-moths and micro-moths, although these are more groupings of convenience than strict taxonomic classifications. Butterflies are day-flying and can be distinguished from most moths by their clubbed antennae. Burnet moths (Zygaenidae) also have clubbed antennae but can be distinguished by their distinctive appearance. The majority of moths are crepuscular or nocturnal but a significant number of species are day-flying. Micro-moths are generally smaller than macro-moths, with a forewing length of 1 cm or less (Waring & Townsend, 2003) but there is considerable overlap in size.

Butterflies are the best known Lepidoptera with numerous popular field guides, published atlases of their distribution (Heath *et al.*, 1984; Asher *et al.*, 1993) and numerous detailed studies on the ecology of individual species. However, few butterfly species occur in Ireland and several major Irish habitats (particularly fens and saltmarshes) do not have characteristic butterfly faunas. Macro-moths are relatively well known with several popular field guides to their identification (Skinner,

1998; Waring & Townsend, 2003). There has been a long tradition of recording macro-moths in Ireland and Britain and their distribution and habitat preferences are, for the most part, reasonably well understood. Micro-moths are the least well known group, due to difficulties of identification, and the taxonomy, ecology and distribution of many species is poorly understood.

#### **The selection of lepidopteran groups for databasing**

Speight (1986) suggested a number of criteria for the selection of insects to be used as bioindicators in nature conservation research. Macro-moths satisfy most of these criteria as their taxonomy is well-understood and the necessary taxonomic literature is readily available, reliable national species lists and distribution data are available, their habitats can be defined and they can be used to “detect site attributes that cannot be more easily detected using either vertebrates or higher plants”. In particular, because of the specialised requirements of their caterpillars, Macro-lepidoptera are well suited for studies examining the influence of vegetation composition and structure on biodiversity, such as studies on the effects of agricultural and forestry management practices. There are 582 species of macro-moth known from Ireland. Databasing all of these species was not possible within the scope of this project. Therefore, we decided to select the Noctuidae family as it is one of the two major families of Irish Macro-lepidoptera. Noctuid moths are generally relatively easy to identify and the good numbers of species occur in all the major Irish habitats (see Table 2).

Butterflies also satisfy most of the criteria suggested by Speight (1986). However, they are of limited use in biodiversity assessments in Ireland because of the low number of species and the fact that several major habitats have few or no characteristic butterfly species (see Table 2). However, butterflies are a very well-known and popular group. Therefore, inclusion of butterflies in the database would help to demonstrate the utility of the databasing approach to a wider audience than might be interested in the less familiar invertebrate groups that have already been databased.

**Table 1.** Families of Irish moths and numbers of Irish species in each family

Group	Family	Number of Irish species
Micro-moths	Micropterigidae	4
	Eriocraniidae	8
	Nepticulidae	62
	Opostegidae	2
	Tischeriidae	3
	Incurvariidae	5
	Prodoxidae	3
	Adelidae	11
	Heliozelidae	3
	Psychidae	5
	Tineidae	25
	Buccalatricidae	9
	Gracillariidae	55
	Choreutidae	4
	Glyphipterigidae	6
	Yponomeutidae	50
	Lyonetiidae	8
	Coleophoridae	52
	Elachistidae	33
	Oecophoridae	44
	Gelechiidae	71
	Autostichidae	1
	Blastobasidae	1
	Batrachedridae	1
	Momphidae	8
	Cosmopterigidae	9
	Scythrididae	2
	Tortricidae	224
	Epermeniidae	2
	Schreckensteiniidae	1
Alucitidae	1	

Group	Family	Number of Irish species
	Pyralidae	88
	Pterophoridae	22
Macro-moths	Hepialidae	4
	Cossidae	2
	Zygaenidae	4
	Sesiidae	6
	Lasiocampidae	9
	Saturniidae	1
	Drepanidae	10
	Geometridae	233
	Sphingidae	13
	Notodontidae	20
	Lymantriidae	6
	Arctiidae	22
	Ctenuchidae	3
	Nolidae	1
	Noctuidae	248
Butterflies	Hesperiidae	2
	Pieridae	8
	Lycaenidae	7
	Nymphalidae	22

**Source:** Bond *et al.* (2006); adventive butterfly species have been omitted in this table.

Note: families are arranged in taxonomic order within each group.

**Table 2.** Habitat associations of Irish noctuid moths and butterflies

Macrohabitat	Number of associated species	
	Noctuids	Butterflies
Deciduous forests	74	6
Wet woods	71	1
Alluvial forest	61	5
Conifer Plantations	6	2
Scattered trees in open ground	83	3
Forest clearings/tracksides	101	26
Grassland	129	25
Heath	44	8
Coastal beaches	17	7
Coastal dunes	97	12
Vegetated sea-cliffs	63	8
Cliff & rock	9	12
Moraine & scree	5	6
old walls	7	3
Culture Macrohabitats	132	24
Fen	77	4
Transition mire	93	8
Bog	66	11
Reed/tall sedge beds	19	0
Marsh and tall herb swamp	22	0
Submerged/floating vegetation in still water	0	0
Saltmarsh	12	1

**Source:** macrohabitat spreadsheets prepared for this study (see below).

## MACROHABITATS PREFERENCES OF IRISH LEPIDOPTERA

### Introduction

This document provides a classification that is intended to cover all macrohabitats used by Irish Lepidoptera. The classification was prepared using the *Syrph The Net* macrohabitat classification (Speight et al., 2003) as a basic framework, but has been modified to fit the requirements of a Lepidoptera macrohabitat classification. Where possible, the modifications have been based upon the CORINE classification (Commission of the European Communities, 1991). The habitat definitions are, therefore, based upon those in the *Syrph The Net* macrohabitat classification, and also include elements taken from the CORINE classification and from the Heritage Council (Fossit, 2000) classification. The correspondence between the Lepidoptera macrohabitat categories and those of the CORINE and Heritage Council (HC) classifications is indicated where possible.

The accompanying Macrohabitat spreadsheets provide, in coded form, data on the macrohabitat preferences of the species of Lepidoptera covered by the species accounts. The coding system used is as follows:

3 = maximally preferred macrohabitat, the presence of the species would be expected in this macrohabitat/predicted for this macrohabitat

2 = preferred macrohabitat, the presence of the species would be predicted for this macrohabitat

1 = the species can occur in this macrohabitat under certain circumstances but would not generally be predicted for this macrohabitat.

blank = the species does not occur in this macrohabitat.

In the spreadsheet, the species number refers to the Bradley and Fletcher (1986) checklist species number, as used in Emmet (1991).

### Summary table

#### 1. FOREST MACROHABITATS

##### 1.1 DECIDUOUS FORESTS - (GEN.)

###### 1.1.1 Humid Fagus forests

###### 1.1.2 Quercus/Fraxinus/Corylus forests - (gen.)

1.1.2.1 Overmature

1.1.2.2. Mature

1.1.2.3 Saplings

###### 1.1.3 Acidophilous Quercus forests - (gen.)

1.1.3.1 Overmature

1.1.3.2 Mature

1.1.3.3 Saplings

- 1.1.4 Fraxinus forests
- 1.1.5 Betula forests - (gen.)
  - 1.1.5.1 Overmature
  - 1.1.5.2 Mature
  - 1.1.5.3 Saplings
- 1.1.6 Alnus forests
- 1.2 SCRUB - (GEN.)
  - 1.2.1 Scrub on poor soils (gen.)
    - 1.2.1.1 Ulex scrub
  - 1.2.2 Scrub on rich soils
- 1.3 WET WOODS - (GEN.)
  - 1.3.1 Betula/Pinus swamp
  - 1.3.2 Alnus swamp
  - 1.3.3 Salix swamp
- 1.4 ALLUVIAL FOREST - (GEN.)
  - 1.4.1 Softwood alluvial forests
  - 1.4.2 Hardwood alluvial forests
  - 1.4.3 Brook floodplain alluvial forests
- 1.5 CONIFER PLANTATIONS - (GEN.)
  - 1.5.1 Abies/Larix/Picea plantations
  - 1.5.2 Pinus sylvestris plantations (152)
- 1.6 SCATTERED TREES IN OPEN GROUND - (GEN.)
  - 1.6.1 Scattered Quercus in open ground
  - 1.6.2 Scattered Populus in open ground
  - 1.6.3 Scattered Salix in open ground
  - 1.6.4 Scattered Acer pseudoplatanus in open ground
  - 1.6.5 Scattered Betula in open ground
- 1.7 FOREST CLEARINGS/TRACKSIDES - (GEN.)
  - 1.7.1 Tall herb forest clearings/tracksides
  - 1.7.2 Grassy forest clearings/tracksides

## 2 OPEN GROUND MACROHABITATS - (GEN.)

### 2.1 GRASSLAND - (GEN.)

#### 2.1.1 Unimproved grassland - (gen.)

##### 2.1.1.1 Dry grassland - (gen.)

###### 2.1.1.1.1 Dry calcareous grassland

###### 2.1.1.1.2 Dry non-calcareous grassland

##### 2.1.1.2 Humid grassland - (gen.)

###### 2.1.1.2.1 Eutrophic humid grassland - (gen.)

###### 2.1.1.2.1.1 Eutrophic humid grassland – non-flooded

###### 2.1.1.2.1.2 Eutrophic humid grassland - flooded

###### 2.1.1.2.2 Oligotrophic humid grassland - (gen.)

###### 2.1.1.2.2.1 Molinia grassland

##### 2.1.1.3 Montane grassland

#### 2.1.2 Improved grassland - (gen.)

##### 2.1.2.1 Lightly-grazed improved grassland

##### 2.1.2.2 Heavily-grazed improved grassland

##### 2.1.2.3 Hay meadows

#### 2.1.3 Intensive grassland

### 2.2 HEATH

#### 2.2.1 Wet heath

#### 2.2.2 Dry siliceous heath

#### 2.2.3 Dry calcareous heath

#### 2.2.4 Montane heath

## 3. COASTAL BEACHES, DUNES AND CLIFFS - (GEN.)

### 3.1 COASTAL BEACHES

### 3.2 COASTAL DUNES - (GEN.)

#### 3.2.1 Ammophila dunes

#### 3.2.2 Grey dunes

#### 3.2.3 Dune scrub

#### 3.2.4 Machair

#### 3.2.5 Dune slacks



- 3.3 VEGETATED SEA-CLIFFS
- 4 ROCK, CLIFF, MORaine AND SCREE - (GEN.)**
  - 4.1 CLIFF & ROCK - (GEN.)
    - 4.1.1 Limestone pavement
  - 4.2 MORaine & SCREE - (GEN.)
    - 4.2.1 Calcareous moraine & scree
    - 4.2.2 Non-calcareous moraine & scree
  - 4.3 OLD WALLS
- 5 CULTURE MACROHABITATS - (GEN.)**
  - 5.1 CROPS - (GEN.)
    - 5.1.1 Crops - fallow
  - 5.2 FIELD MARGINS
  - 5.3 HEDGE
  - 5.4 ORCHARDS
  - 5.5 URBAN PARKS
  - 5.6 ORNAMENTAL GARDENS
  - 5.7 FARMYARD OUTBUILDINGS
- 6 WETLAND MACROHABITATS - (GEN.)**
  - 6.1 FEN - (GEN.)
    - 6.1.1 Rich fen/fen-sedge beds
    - 6.1.2 Acid fen
    - 6.1.3 Fen carr
  - 6.2 TRANSITION MIRE
  - 6.3 BOG - (GEN.)
    - 6.3.1 Raised bog
    - 6.3.2 Blanket bog
    - 6.3.3 Cutover bog
  - 6.4 REED/TALL SEDGE BEDS - (GEN.)
    - 6.4.1 Phragmites reedbeds (gen.)
      - 6.4.1.1 Coastal Phragmites reedbeds
      - 6.4.1.2 Non-coastal Phragmites reedbeds

6.4.2 Typha swamp

6.4.3 Bolboschoenus swamp

6.4.4 Schoenoplectus swamp

6.4.5 Sparganium swamp

6.4.6 Tall Carex swamp

6.5 MARSH AND TALL HERB SWAMP

6.6 SUBMERGED AND FLOATING VEGETATION IN STILL WATER

## 7 SALTMARSH

7.1 SALICORNIA SALTMARSH

7.2 ATLANTIC SALTMARSH

7.3 SALTMARSH SCRUB

## Macrohabitat classification

### *Forest macrohabitats (1)*

Natural, semi-natural and planted formations of trees, incorporating stands of overmature, mature and young (saplings/scrub) trees, but not including hedgerows. Some types of forests in this classification are sub-divided into the following categories:

- **Overmature:** Here overmature/senescent trees are taken to be those on which microhabitats for saproxylic organisms (i.e. sap runs, rot-holes, trunk cavities, observable areas of dead wood or loose bark) have developed. As a generality, such trees are significantly older than those which would be regarded as overmature by foresters. They may occur in stands or scattered among trees of much younger age, a significant proportion of overmature trees would be approximately 1 to 2 % of the tree cover per ha.
- **Mature:** stands of trees that have reached the age of fructification without yet developing the features described under "overmature forest", but have developed closed canopy conditions.
- **Saplings:** stands of young trees which have not reached maturity or a height to create closed canopy conditions.

Where forest types are not divided into the above sub-categories, only species associated with the mature and overmature stages are coded. These forest types do not have a distinctive fauna associated with the sapling stage, but some of the species associated with forest clearings/tracksides will occur in this stage.

### Deciduous forests - (gen.) (11)

Natural/semi-natural tree formations of deciduous species, with stands of overmature, mature and young (saplings/scrub) trees.

**Humid Fagus forests (gen.) (111)**

Forests with beech (*Fagus sylvatica*) a dominant or frequent component. In Ireland, these forests derive from planting, or by invasion from planted stock.

**Quercus/Fraxinus/Corylus forests - (gen.) (112)**

Oak/ash/hazel forests with stands of overmature, mature and young (saplings/scrub) trees. This category corresponds to CORINE 41.21 (Mixed atlantic bluebell oak forests) and (in part) to HC WN2 (Oak-ash-hazel woodland).

**Acidophilous Quercus forests - (gen.) (113)**

Acid oak forest, with stands of overmature, mature and young (saplings/scrub) trees. This category corresponds to CORINE 41.531 (Irish sessile oak woods) and HC WN1 (Oak-birch-holly woodland).

**Fraxinus forests (114)**

Ash (*Fraxinus*) forests, with stands of overmature, mature and young (saplings/scrub) trees. This category corresponds to CORINE 41.31 (Ash-rowan-mercury forests), CORINE 41.35 (Mixed atlantic bluebell ash forests) and (in part) to HC WN2 (Oak-ash-hazel woodland).

**Betula forests - (gen.) (115)**

Birch (*Betula*) forests on non-marshy terrain, with stands of overmature, mature and young (saplings/scrub) trees. This category corresponds to CORINE 41.B121 (Medio-European dry acidiphilous birch woods) and (in part) to HC WN1 (Oak-birch-holly woodland).

**Alnus forests (116)**

Non-riparian, non-marshy alder (*Alnus*) forest, with stands of overmature, mature and young (saplings/scrub) trees. This category corresponds to CORINE 41.C2 (*Alnus glutinosa* woods).

Scrub - (gen.) (12)

Thickets encompassing scrub formations of the phytosociological units Prunetalia on rich and poor soils and gorse thickets with *Ulex europea*.

**Scrub on poor soils (gen.) (121)**

Corresponds to CORINE 31.83 (Atlantic poor soil thickets) and CORINE 31.85 (Gorse thickets); and to HC WS1 (Scrub).

*Ulex scrub (1211)*

Gorse/furze (*Ulex europaea*) thickets. Corresponds to CORINE 31.85 (Gorse thickets); and (in part) to HC WS1 (Scrub).

**Scrub on rich soils (122)**

Corresponds to CORINE 31.81 (Medio-european rich-soil thickets); and (in part) to HC WS1 (Scrub).

Wet woods - (gen.) (13)

Tree and shrub vegetation of marshes, fens and bogs, with stands of overmature, mature and young (saplings/scrub) trees. Encompassing very wet swampy woods.

**Betula/Pinus swamp (131)**

Bog woodland of pine and birch, with stands of overmature, mature and young (saplings/scrub) trees. Corresponds to CORINE 44.A (Birch and conifer swamp woods); and HC WN7 (Bog woodland).

**Alnus swamp (132)**

Wet alder (*Alnus*) woods, with stands of overmature, mature and young (saplings/scrub) trees. Corresponds to CORINE 44.91 (Alder swamp woods); and included in HC WN6 (Wet willow-alder-ash woodland).

**Salix swamp (133)**

Small-willow (*Salix* spp.) dominated wet woodlands of lake edges and seepages/springs on river floodplains, with stands of overmature, mature and young (saplings/scrub) trees (see also under fen carr). Corresponds to CORINE 44.92 (Mire willow scrub); and included in HC WN6 (Wet willow-alder-ash woodland).

Alluvial forest - (gen.) (14)

**Softwood alluvial forests (141)**

Formations of *Salicetea purpureae* subject to periodic flooding, with stands of overmature, mature and young (saplings/scrub) trees: Included in CORINE 44.1 (Riparian willow formations); and corresponds to HC WN5 (Riparian woodland).

**Hardwood alluvial forests (142)**

Riparian forests on slow-flowing watercourses on periodically-flooded alluvial sites that are well above the limits of regular inundation, dominated by Pedunculate Oak (*Quercus robur*) and/or Ash (*Fraxinus excelsior*), with Alder (*Alnus glutinosa*) often frequent. This woodland type is typified by the remnant alluvial forest in the Gearagh. Included in HC WN4 (Wet pedunculate oak-ash woodland).

**Brook floodplain alluvial forests (142)**

Riparian forests of *Fraxinus excelsior* and *Alnus glutinosa*, of the rhithral (upper reaches) section of watercourses on soils periodically inundated by the annual rise of the river level, but otherwise well-drained and aerated during low-water. Includes CORINE 44.31 (Ash-alder woods of rivulets and streams) and CORINE 44.32 (Ash-alder woods of fast-flowing rivers). Included in HC WN4 (Wet pedunculate oak-ash woodland).

Conifer Plantations - (gen.) (15)

Planted, uniformly-aged, usually single-species stands of coniferous trees. Corresponds to CORINE 83.31 (conifer plantations); and HC WD4 (Conifer plantation).

**Abies/Larix/Picea plantations (151)**

Plantations of fir, larch or spruce. Corresponds to CORINE 83.3111 (European fir, spruce, larch plantations); and included in HC WD4 (Conifer plantation).

**Pinus sylvestris plantations (152)**

Plantations of Scots pine. Included in CORINE 83.3112 (European pine plantations).

**Scattered trees in open ground - (gen.) (16)**

Individual mature or overmature trees, isolated from one another, or occurring only in scattered clumps or lines, or as occasional outstanding trees in hedgerows, or along forest edges as isolated examples of a species. Includes HC WL (Linear woodland/scrub).

**Scattered Quercus in open ground (161)**

**Scattered Populus in open ground (162)**

**Scattered Salix in open ground (163)**

**Scattered Acer pseudoplatanus in open ground (164)**

**Scattered Betula in open ground (165)**

**Forest clearings/tracksides - (gen.) (17)**

Open areas within forest carrying a herb layer vegetation.

**Tall herb forest clearings/tracksides (171)**

Tall herb rich communities of open areas and tracksides within forest, including the communities of usually large-leaved herbs developing along woodland edges, with *Galium aparine*, *Glechoma hederacea*, *Geum urbanum*, *Aegopodium podagraria*, *Silene dioica*, *Carduus crispus*, *Lamium album*, *Alliaria petiolata*, *Lapsana communis*, *Geranium robertianum*, *Viola odorata* (CORINE 37.72: Shady woodland edge fringes). Also included here are tall herb communities colonising clear-felled areas (CORINE: 31.871: Herbaceous clearings). Humid tall herb communities (CORINE 37.71) are not included in this category. This category may include HC WS5 (Recently felled woodland).

**Grassy forest clearings/tracksides (172)**

Open areas within forest carrying a grassy herb layer vegetation which cannot survive under closed canopy conditions, with or without some shrub vegetation (e.g. *Rubus fruticosus*, *Prunus spinosus*, *Corylus*) and often with patches of bare ground. This category may contain elements of CORINE category 31.87 (Woodland clearings) but tends to be less transitory, being largely maintained by grazing or cutting.

*Open ground macrohabitats - (gen.) (2)*

Grassland - (gen.) (21)

Sparsely to densely-vegetated open ground over which grasses are a dominant component, whether natural (climatic or physiographic) or maintained primarily by the action of grazing animals, domestic or wild, or by mechanical harvesting regimes.

**Unimproved grassland - (gen.) (211)**

Lightly-grazed grassland (i.e. grassland cropped sufficiently to result normally in dominance by grasses, inhibition of extensive scrub cover and a sward height greater than 10cm) which is not fertilised or cultivated and not subject to reseeded or to systematic removal of loose, surface stones.

*Dry grassland - (gen.) (2111)*

Lightly grazed, unimproved, dry grasslands

Dry calcareous grassland (21111)

Calcareous, unimproved grassland on freely-draining substrates. Many characteristic species, including the butterflies: *Erynnis tages*, *Coenonympha pamphilus*. Corresponds to CORINE 34.3212 (Irish *Mesobromium*); and included in HC GS1 (Dry calcareous and neutral grassland).

Dry non-calcareous grassland (21112)

Grassland with fine grasses, e.g. *Agrostis*, often found on dry sites over granite (Wicklow), or in plantation margins or tracks. Characteristic species: *Hipparchia semele*, *Perconia strigillaria*. Corresponds to CORINE 35.1 (Atlantic mat-grass swards and related communities); and included in HC GS3 (Dry-humid acid grassland).

*Humid grassland - (gen.) (2112)*

Unimproved grasslands on wet or waterlogged mineral or organic soils that are poorly-drained or, in some cases, subjected to seasonal or periodic flooding. On sloping ground, wet grassland is mainly confined to clay-rich gleys and loams, or organic soils that are wet but not waterlogged.

Eutrophic humid grassland - (gen.) (21121)

Humid grasslands on moderately to very nutrient-rich wet or damp soils, which are relatively lightly mowed or grazed. Includes CORINE 37.217 (Soft rush meadows), 37.218 (Blunt-flowered rush meadows) and CORINE 37.242 (Creeping bent and tall fescue swards). Included in HC GS4 (Wet grassland).

*Eutrophic humid grassland – non-flooded (211211)*

Humid eutrophic grasslands that are not subject to regular inundation (see under 211212).

*Eutrophic humid grassland - flooded (211212)*

Humid eutrophic grasslands that are subject to regular inundation, involving submergence of, at least, the root zone for several weeks. Includes grasslands in turlough basins and callows.

Oligotrophic humid grassland - (gen.) (21122)

Humid grasslands on nutrient-poor soils. Includes CORINE 37.22 (Sharp-flowered rush meadows), 37.31 (Purple moorgrass meadows and related communities), 37.32 (Heath rush meadows and humid mat-grass swards), and CORINE 51.2 (Purple moorgrass bogs). Includes elements of HS GS3 (Dry humid-acid grasslands) and GS4 (Wet grasslands). Note that this category only includes heath rush meadows and humid mat-grass swards below 600 m; examples of this vegetation above 600 m are coded separately under 2113.

*Molinia grassland (211221)*

Humid oligotrophic grasslands where *Molinia* is a prominent component, including drained bogs invaded by *Molinia*. Includes CORINE 37.31 (Purple moorgrass meadows and related communities) and CORINE 51.2 (Purple moorgrass bogs).

*Montane (2113)*

Heath rush meadows and humid mat-grass swards (CORINE 37.32) at high elevations, i.e. above 600 m. In Britain, additional types of montane grassland have characteristic Lepidoptera species, and there is not enough information to determine whether some of these vegetation types also support characteristic Lepidoptera species in Ireland.

**Improved grassland - (gen.) (212)**

Regularly grazed, or managed for hay, mesophile pastures, fertilised and on well-drained sites, including species-poor pastures (CORINE 38.111: Ryegrass pastures), more species-rich pastures (CORINE 38.112: *Cynosurus-Centaurea* pastures) and hay meadows (CORINE 38.21: Atlantic hay meadows). Includes elements of HC GA1 (Improved agricultural grassland), GS1 (Dry calcareous and neutral grassland) and GS2 (Dry meadows and grassy verges).

*Lightly-grazed improved grassland (2121)*

Improved grassland, where cropping of ground vegetation results in a sward height greater than 10cm.

*Heavily-grazed improved grassland (2122)*

Improved grassland, where grazing of ground vegetation results in a sward height less than 10cm.

*Hay meadows (2123)*

Improved grassland where the vegetation is mechanically cut when leaf growth has finished and flowering of the dominant grasses is occurring (but before seed formation), followed by in-situ drying of the cut crop and its subsequent removal once dry.

**Intensive grassland (213)**

Heavily fertilised or reseeded grasslands, subjected to periodic cultivation and frequently alternated with crops in rotational systems; sometimes treated by selective herbicides and with very impoverished flora and fauna. Corresponds to CORINE 81 (Improved grasslands); and includes elements of HC GA1 (Improved agricultural grassland).

Heath (22)

Wet heath (221)

Heath vegetation of dwarf shrubs on peaty soils and shallow wet peats that typically have an average depth of 15-50 cm. Corresponds to CORINE 31. 1 (Wet heaths); and to HC HH3 (Wet heath)

**Dry siliceous heath (222)**

Heath vegetation of dwarf shrubs on acid, oligotrophic, dry or free-draining soils (mainly mineral-rich or peaty podzols). Corresponds to CORINE 31. 231 (Maritime gorse heaths), 31.232 (Gallo-Irish *Ulex galli*-*Erica cinerea* heaths), 31.233 (Irish *Erica mackaiana* heaths) and 31.234 (Northern *Erica vagans* heath); and to HC HH1 (Dry siliceous heath)

**Dry calcareous heath (223)**

Heath vegetation of dwarf shrubs in limestone areas on rocky ground or on shallow soils that are well-drained and base-rich. This includes fragments of *Calluna*-dominated habitat within areas of limestone pavement; e.g. within Burren; and limestone shores of Lough Corrib. Corresponds to HC HH2 (Dry calcareous heath).

**Montane heath (224)**

Heath vegetation of dwarf shrubs of dwarf shrubs and/or mosses that occurs at high altitudes on mountains and in other very exposed locations in the uplands or on the coast. Includes CORINE 31.494 (Burren *Dryas* mats); and corresponds to HH4 (Montane heath).

*Coastal beaches, dunes and cliffs - (gen.) (3)*

Coastal beaches (31)

Vegetated drift lines of sand and shingle beaches. Includes CORINE 16.12 (Sand beach annual communities), 16.13 (Sand beach perennial communities), 17.2 (Shingle beach drift lines) and CORINE 17.3 (Sea Kale communities); and elements of HC LS1 (Shingle and gravel shores), LS2 (Sand shores) and CB1 (Shingle and gravel banks).

Coastal dunes - (gen.) (32)

**Ammophila dunes (321)**

Partially stabilised dunes along the seaward edge of the main sand dune system dominated by Marram (*Ammophila arenaria*). Corresponds to CORINE 16.21 (Shifting dunes); and includes HC CD1 (Embryonic dunes) and CD2 (Marram dunes).

**Grey dunes (322)**

Stabilised dunes colonised by more or less closed perennial grassland, and with accumulation of humus in the soil. Corresponds to CORINE 16.22 (Grey dunes); and to HC CD3 (Fixed dunes).

**Dune scrub (323)**

Dunes with dense cover of large shrubs. Corresponds to CORINE 16.25 (Dune thickets); and includes elements of HC CD4 (Dune scrub and woodland).



**Machair (324)**

Level grassland with mosaics of wet and dry areas on windblown calcareous sands behind dunes. Corresponds to CORINE 1A (Machair); and HC CD6 (Machair).

**Dune slacks (325)**

Humid depressions in sand dune systems, which can include pools, fens, humid grasslands, reedbeds and tall sedge beds. Corresponds to CORINE 16.3 (Humid dune-slacks); and HC CD5 (Dune-slacks).

Vegetated Sea-cliffs (33)

Vegetated steep to vertical sea-cliffs with gullies and ledges; characteristic plants include *Armeria maritima*, *Cochlearia officinalis*, *Spergularia* spp., *Silene maritima*. Many characteristic Lepidoptera, some very localised, including several with specific Irish forms: *Rhigognostis annulatella*, *Lobesia littoralis*, *Eupithecia venosata*, *Gnophos obscuratus*, *Hadena caesia*, *Hadena luteago barrettii*, *Hadena perplexa capsophila*, *Polymixis xanthomista*. Corresponds to CORINE 18.21 (Atlantic cliff communities); and includes elements of HC CS1 (Rocky sea cliffs) and CS3 (Sedimentary sea cliffs)

*Rock, cliff, moraine and scree - (gen.) (4)*

Cliff & rock - (gen.) (41)

Cliffs and expanses of rock, including horizontal surfaces, bare or vegetated, weathered or unweathered.

**Limestone pavement (411)**

Regular blocks of limestone known as “clints” with loose flags separated by a network of vertical fissures known as “grykes” or “shattered pavements”, containing more loose limestone rubble. The rock surface is almost devoid of overlying soils (considerably less than 50% cover) except for some patches of shallow skeletal or loessic soils, although more extensive areas of deeper soil occasionally occur; sometimes there is encroachment of peat. This morphology offers a variety of microclimates allowing the establishment of complex vegetation consisting of a mosaic of different communities. The fissures provide a cold, humid microclimate where shade-tolerant vascular plants such as *Geranium robertianum* and *Ceterach officinale* occur, as well as formations of herbaceous species typical of calcareous woodland; the small pockets of soil are occupied by communities of Mesobromion (e.g. Seslerio-Mesobromenion). Heath and scrub may also occur, but if they do, these elements should be coded separately under 122 or 233. Includes elements of CORINE 62.3 (Pavements); and HC ER2 (Exposed calcareous rock).

Moraine & scree - (gen.) (42)

Screes and glacial moraines with some pioneer vegetation.

**Calcareous moraine & scree (421)**

Moraine and scree derived from calcareous rock and with some pioneer vegetation. Corresponds to HC ER4 (Calcareous scree and loose rock).

**Non-calcareous moraine & scree (422)**

Moraine and scree derived from non-calcareous, primarily siliceous, rock types and with some pioneer vegetation. Corresponds to HC ER3 (Siliceous scree and loose rock).

Old walls (43)

Walls made from blocks of natural rock, that have been in situ long enough to gather a partial covering of vegetation e.g. *Sedum*, *Umbilicus*, thus providing a secondary habitat for some moraine and scree organisms. Included in HC BL1 (Stone walls and other stonework).

*Culture Macrohabitats - (gen.) (5)*

Crops - (gen.) (51)

Fields of cereals, beets, sunflowers, leguminous fodder, potatoes and other annually harvested plants. Corresponds to CORINE 82 (Crops); and to HC BC (Cultivated land).

**Crops - fallow (511)**

Farmland in its first year (or at most second year) after cultivation that has been left unsown with any crop (including grass-crops) for the duration of at least one growing season. Fallowing is normally carried out as part of an arable rotation system and as defined here includes unsown "setaside" land (now employed within the EU as a standard mechanism for crop production control). Included in HC ED3 (Recolonising bare ground).

Field margins (52)

Permanently uncultivated, linear strip of land along the boundary of a cropland or intensive grassland, usually less than 2m wide and covered in herbaceous vegetation in which grasses predominate, and frequently backed by a hedge or fence. Coding of this habitat category assumes there is an electric fence separating the field margin from the field itself, in fields used for stock grazing. There is otherwise no definable field margin in fields used for stock grazing.

Hedge (53)

Linear strips of deciduous trees and/or shrubs, planted along field edges, roadsides etc., frequently spinose (e.g. *Crataegus*, *Prunus spinosus*) and maintained, usually by mechanical cutting, to regulate height and width, so forming a dense and continuous band of woody vegetation a few metres high. Where trees are present, they should be coded separately under the appropriate Scattered trees in open ground (61) category. Corresponds to HC WL1 (Hedgerows).

Orchards (54)

Tree crops of standards, cultivated for fruit production. Corresponds to CORINE 83.151 (Northern fruit orchards).

Urban parks (55)

Large green spaces in urban areas, managed for recreational use. Corresponds to CORINE 85.1 (Large parks).

Ornamental gardens (56)

Small green spaces, usually urban/suburban, attached to residential dwellings, or maintained by public authorities etc, planted with a miscellany of indigenous and exotic flowering plants, shrubs and trees for recreation, rather than for food production or forestry purposes. Corresponds to CORINE 85.31 (Ornamental gardens)

Farmyard outbuildings (57)

Buildings containing stored hay, grain and chaff, with collections of spilt seeds in corners.

Wetland Macrohabitats - (gen.) (6)

Fen - (gen.) (61)

**Rich fen/fen-sedge beds (611)**

Rich fen/beds of small sedges. Corresponds to CORINE 54.2 (Rich fens); and to HC PF1 (Rich fen and flush).

**Acid fen (612)**

Corresponds to CORINE 54.4 (Acidic fens); and to HC PF2 (Poor fen and flush).

**Fen carr (613)**

Salix dominated formations of fen and transition mire. Includes elements of CORINE 44.92 (Mire willow scrub); HC WN6 (Wet willow-alder-ash woodland).

Transition mire (62)

Wetland type intermediate between fen and bog. Corresponds to CORINE 54.5 (Transition mire); and to HC PF3 (Transition mire and quaking bog).

Bog - (gen.) (63)

**Raised bog (631)**

Corresponds to CORINE 51.1 (Near-natural raised bogs); and to HC PB1 (Raised bogs).

**Blanket bog (632)**

Includes CORINE 52.1 (Lowland blanket bogs) and 52.2 (Upland blanket bogs); and HC PB2 (Upland blanket bog) and PB3 (Lowland blanket bog).

**Cutover bog (633)**

Areas of valley bog (raised bog) or blanket bog which have been exploited for peat-cutting in the past, leaving an uneven and lowered land surface incorporating pools, regenerating bog and (usually) patches of birch/willow (*Betula/Salix*) scrub. Corresponds to HC PB4 (Cutover bog).

Reed/tall sedge beds - (gen.) (64)

Species-poor formations of tall reeds or sedges, often dominated by one species, growing in stagnant or slowly flowing water or on waterlogged ground. Corresponds to HC FS1 (Reed and large sedge swamps).

**Phragmites reedbeds (gen.) (641)**

Reedbeds dominated by common reed (*Phragmites*). Corresponds to CORINE 53.11 (Common Reed Beds).

*Coastal Phragmites reedbeds (6411)*

Silty estuarine shores with reedbeds in brackish water. Three characteristic species, all rare and confined to southern or southeastern sites: *Archanara dissoluta*, *Archanara geminipuncta*, *Chilodes maritimus*.

*Non-coastal Phragmites reedbeds (6412)*

Reedbeds in still or slow-flowing water; found within fens, or on lake margins. Characteristic species: *Cosmopterix orichalcea*, *C. lienigiella*, *Chilo phragmitella*.

**Typha swamp (642)**

Stands of *Typha*. Characteristic species: *Limnaecia phragmitella*, *Archanara algae*, *Nonagria typhae*. Corresponds to CORINE 53.13 (Reedmace beds).

**Bolboschoenus swamp (643)**

Stands of *Bolboschoenus maritimus* in estuaries or on saltmarshes. Characteristic species: *Elachista scirpi*, *Bactra robustana*. Included in CORINE 53.17 (Halophile clubrush beds).

**Schoenoplectus swamp (644)**

Stands of *Schoenoplectus lacustris* in turloughs, and by lakeshores. Characteristic species: *Bactra furfurana*, *Archanara algae*. Corresponds to CORINE 53.12 (Common clubrush beds).

**Sparganium swamp (645)**

Patches of *Sparganium* in ponds, lakes and slow-flowing freshwater. Characteristic species: *Orthotaelia sparganella*, *Nymphula nitidulata*, *Achanara sparganii*. Corresponds to CORINE 53.143 (Erect bur-reed communities).

**Tall Carex swamp (646)**

Wetlands, both acid and alkaline, with tussocks of tall *Carex* species (*C. paniculata*, *C. spicata*, *C. disticha*, *C. acutiformis*, *C. riparia*, *C. flacca*, *C. acuta*, *C. elata*). Characteristic species: *Glyphipterix forsterella*, *Elachista alpinella*, *Elachista serricornis*, *Elachista utonella*, *Elachista albidella*, *Donacaula mucronellus*, *Eustrotia uncula*.

**Marsh and tall herb swamp (65)**

Permanently-water-logged ground on mineral soils, subject to flooding by surface water following rain. This category includes formations of tall herbs on wetland and alluvial sites, and edging rivers and streams, but excludes reed and tall sedge beds. Includes CORINE 37.1 (Meadowsweet stands and related communities) and 37.7 (Transitional tall herb humid meadows); and HC FS2 (Tall herb swamps) and GM1 (Marsh).

Submerged and floating vegetation in still water (66)

Submerged and floating vegetation (*Elodea*, *Potamogeton*, *Nuphar*) in lakes, ponds (including bog-pools), ditches and other slow-flowing waters. Characteristic species: *Acentria ephemerella*, *Nymphula nitidulata*, *Elophila nymphaeata*, *Cataclysta lemnata*, *Paraonyx stratiotata*. Includes CORINE 22.43 (Rooted floating vegetation).

*Saltmarsh (7)*

Salicornia saltmarsh (71)

Pioneer vegetation of glassworts (*Salicornia* sp.) colonising mudflats. Corresponds to CORINE 15.111 (Atlantic glasswort swards); and included in HC CM1 (Lower salt marsh).

Atlantic saltmarsh (72)

Corresponds to CORINE 15.3 (Atlantic salt meadows); and includes elements of HC CM1 (Lower salt marsh) and HC CM2 (Upper saltmarsh).

Saltmarsh scrub (73)

Saltmarsh with *Halimione portaculoides*. Corresponds to CORINE 15.621 (Silver scrubs); and includes elements of HC CM1 (Lower salt marsh).

## MICROSITE PREFERENCES OF IRISH LEPIDOPTERA

This document provides a classification that is intended to cover all microsites used by Irish and British Lepidoptera. The classification was prepared using the *Syrph The Net* microsite classification (Speight *et al.*, 2003) as a basic framework, but has been modified to fit the requirements of a Lepidoptera microsite classification.

The term “microsite” is used instead of “microhabitat” for the reasons described by Speight *et al.* (2003b) in relation to their use of the term in the syrphid database:

In all but a small minority of cases, the term microsite feature is used here to denote physical features of the environment, discernable by human eye, that are important components of the microhabitats of syrphid larvae or puparia. No one of these features can be regarded as identical with the microhabitat of a species, because to define the microhabitat of an organism it is necessary to refer to not only physical features but also the conditions under which these features are used by the species (e.g. temperature and humidity parameters), and, frequently, to more than one physical feature. Three of the microsite features referred to are not physical features of the environment, but attributes of physical features. These are water trophic status, water movement and soil drainage, which are included here for convenience. Species are only coded for water trophic status or water movement if their larvae are aquatic/sub-aquatic. Species are only coded for soil drainage if their larvae are associated with the soil.

The accompanying Microsites spreadsheets provide, in coded form, data on the microsite preferences of the species of Lepidoptera covered by the species accounts. The coding system used is as follows:

3 = maximally preferred microsite feature,

2 = preferred microsite feature,

1 = the species can occur with this microsite feature under certain circumstances but would not generally be predicted to occur with this feature.

blank = the species does not occur with this microsite feature.

In the spreadsheet, the species number refers to the Bradley & Fletcher (1986) checklist species number, as used in Emmet (1991).

### Larval Activity Zone Summary table

#### 1. On/in terrestrial plants (gen.)

##### 1.1. Trees (gen.)

1.1.1. On/in foliage

1.1.2. In galls

1.1.3. In fruiting bodies

1.1.4. In bark

1.1.5. In epiphytic plants (mosses & lichens) on bark

1.1.6. On fungi

- 1.1.7. In bird or mammal nests
- 1.1.8. Overmature/senescent trees (gen.)
  - 1.1.8.1. Trunk cavities
  - 1.1.8.2. Loose Bark
- 1.1.9. Mature trees
- 1.1.10. Understorey trees
- 1.1.11. Shrubs/bushes/saplings (gen.)
  - 1.1.11.1. Tall shrubs
  - 1.1.11.2. Low shrubs
- 1.2. Upward climbing lianas
- 1.3. Herb layer (gen.)
  - 1.3.1. On herb layer plants (gen.)
    - 1.3.1.1. On tall herbs
    - 1.3.1.2. On low-growing plants
    - 1.3.1.3. Tussocks and hummocks
      - 1.3.1.3.1 Tussocks of grasses, sedges and rushes
      - 1.3.1.3.2 Hummocks of small forbs
      - 1.3.1.3.3 Moss hummocks
  - 1.3.2. In herb-layer plants (gen.)
    - 1.3.2.1. In leaves/stems.
    - 1.3.2.2. In galls
    - 1.3.2.3. In fruiting bodies
- 1.4. Timber (gen.)
  - 1.4.1. Standing
  - 1.4.2. Fallen
  - 1.4.3. Stumps
- 2. Among/under surface debris (gen.)
  - 2.1. Dung
  - 2.2. Litter (gen.)
    - 2.2.1. Litter – forest
    - 2.2.2. Litter – herb layer
  - 2.3. On dried/stored plant material
  - 2.4. In nests of social insects
  - 2.5. In bird nests
  - 2.6. On dead insects
- 3. Below ground
  - 3.1. Root Zone (gen.)
    - 3.1.1. Grass-roots
    - 3.1.2. Bulbs/tubers
    - 3.1.3. Stem bases
  - 3.2. In bird or mammal nests
  - 3.3. In underground structures
- 4. On/in water plants (gen.)

- 4.1. On/in emergent water plants (gen.)
  - 4.1.1. On/in emergent water plants – out of water
  - 4.1.2. On/in emergent water plants – below surface
- 4.2. On/in Submerged water plants

#### HIBERNATION/OVERWINTERING ZONE

- 5. Above ground surface (gen.)
  - 5.1. Trees
    - 5.1.1. Rotten wood
    - 5.1.2. Trees/under bark
  - 5.2. Plant stems
  - 5.3. In timber (gen.)
    - 5.3.1. Standing timber
    - 5.3.2. Fallen timber
- 6. On the ground (gen.)
  - 6.1. Tussocks and hummocks
    - 6.1.1 Tussocks of grasses, sedges and rushes
    - 6.1.2 Hummocks of small forbs
    - 6.1.3 Moss hummocks
  - 6.2. Litter (gen.)
    - 6.2.1. In herb layer litter
    - 6.2.2. In forest litter
    - 6.2.3. Under stones/boulders
- 7. Below ground
  - 7.1. Bulbs/stem bases
  - 7.2. In soil
  - 7.3. In caves and underground structures
- 8. In nests of social insects
- 9. In submerged water plants

#### SOIL/WATER CONDITIONS

- 10. Soil Drainage
  - 10.1. Poorly drained/gleyed
  - 10.2. Freely draining
- 11. Water trophic status
  - 11.1. Oligotrophic
  - 11.2. Mesotrophic
  - 11.3. Eutrophic
- 12. Water movement
  - 12.1. Slow-moving
  - 12.2. Standing



## OVIPOSITION SITE

13. Within plant
14. On plant
15. On other surfaces
16. Dropped in flight
17. Unknown

## Larval Activity Zone Explanations

### 1. *On/in terrestrial plants (gen.)*

Larvae live in/on, and feed in/on plants.

#### 1.1. Trees (gen.)

Larvae live in, and feed on trees, where they consume the leaves, twigs, fruiting bodies or bark. Certain species feed internally within bark or stems.

##### 1.1.1. **On/in foliage**

Larvae live in, and feed on the foliage of trees. This includes species which feed on the upper or lower epidermis of leaves, within leaf-mines next to either epidermis, and those which feed on the epidermis within a fold which they construct on the surface of a leaf. Larvae of some species live within cases which they construct from spun silk, or from plant fragments, or a combination of both. Such larvae feed on foliage while remaining mainly within the case. Species such as *Ectoedemia argyropeza* (Nepticulidae) commence larval development within the petiole and then proceed into the blade of the leaf which they proceed to mine. Other species bore out of one stem and then enter another one to continue feeding. Larvae of some species (e.g. *Argyresthia* spp., Yponomeutidae) specialise in feeding in buds.

##### 1.1.2. **In galls**

Larval development takes place partly or fully in galls induced by the larva (e.g. *Pammene argyrana*, *Adaina microdactyla*), by Coleoptera (e.g. *Cydia corollana*) or by mites (e.g. *Batia lunaris*).

##### 1.1.3. **In fruiting bodies**

Larvae live partly or wholly in fruiting bodies and feed in them. These include seeds, nuts, berries, fruits, pods and cones.

##### 1.1.4. **In bark**

Larvae live in or on bark, and feed on the bark (e.g. *Cydia cognatana*, *C. pactolana*). This category is broadened here to include leaf-miners within the bark or twig (e.g. *Ectoedemia atrifrontella* on thin green bark (Emmet, 1991)).

##### 1.1.5. **In epiphytic plants (mosses & lichens) on bark**

Larvae live on tree trunks and feed on mosses (e.g. *Eudonia truncicolella*) or lichens (e.g. *Taleporia tubulosa*) on tree trunks.

#### **1.1.6. On fungi**

Larvae live in fungi on living trees and feed on the fungi.

#### **1.1.7. In bird or mammal nests**

Larvae live in bird or mammal nests in trees, where they feed on fur, feathers, and other nest debris.

#### **1.1.8. Overmature/senescent trees (gen.)**

Larvae live in and feed on the rotten wood of trees on which microhabitats for saproxylic organisms (i.e. sap runs, rot-holes, trunk cavities, observable areas of dead wood or loose bark) have developed.

##### *1.1.8.1. Trunk cavities*

Larvae feed on rotting wood in trunk cavities (e.g. *Morphaga choragella*).

##### *1.1.8.2. Loose Bark*

Larvae live on decaying of dead wood under bark (e.g. *Batia lunaris*, *Dafa formosella*).

#### **1.1.9. Mature trees**

Larvae live in/on, and feed in/on trees that have reached the age of fructification without yet developing the features described under "overmature/senescent".

#### **1.1.10. Understorey trees**

Larvae live in/on, and feed in/on trees of more than 2m in height which, at maturity, reach the height of e.g. *Crataegus*, *Juniperus communis*, *Sorbus aucuparia*, or are immature specimens of canopy-forming species. These trees may form a shade-tolerant stratum within a forest canopy or occur away from forest conditions.

#### **1.1.11. Shrubs/bushes/saplings (gen.)**

Larvae live in/on, and feed in/on shrubs/bushes/saplings. This category includes species whose larvae feed on the foliage of saplings in preference to that of mature trees (e.g. *Eriocrania* spp.).

##### *1.1.11.1. Tall shrubs*

Larvae live in/on, and feed in/on woody plants between the heights of 0.5 and 2m, e.g. *Ligustrum vulgare*, *Viburnum*, *Rubus* and young trees (saplings).

##### *1.1.11.2. Low shrubs*

Larvae live in/on, and feed in/on low shrubs/woody plants up to the height of 0.5m, e.g. *Vaccinium*, *Calluna*, *Salix repens*.

### **1.2. Upward climbing lianas**

Larvae live in/on, and feed in/on woody or herbaceous plants climbing 2m or more above the ground surface on trees (e.g. *Lozotaenia forsterana* on *Hedera helix*, *Eupithecia haworthiata* on *Clematis vitalba*).

### **1.3. Herb layer (gen.)**

Larvae live within, and feed on/in ground-living, non-woody plants (including basidiomycete fungi).

### **1.3.1. On herb layer plants (gen.)**

Larvae live partly or wholly on, and feed on, plants of the herb layer.

#### *1.3.1.1. On tall herbs*

Larvae live partly or wholly on, and feed on, tall (higher than 0.5m) strong plants of the herb layer.

#### *1.3.1.2. On low-growing plants*

Larvae live partly or wholly on, and feed on, low-growing (up to 0.5m tall) plants of the herb layer.

#### *1.3.1.3. Tussocks and hummocks*

##### 1.3.1.3.1 Tussocks of grasses, sedges and rushes

Larvae may live within, but always feed within tussocks. This category includes many species which feed nocturnally on grass tussocks, but which lie concealed close to the ground by day, not necessarily within the tussocks.

##### 1.3.1.3.2 Hummocks of small forbs

Hummocks of small forbs such as *Thymus* sp., *Lotus corniculatus*, which often develop on ant nests.

##### 1.3.1.3.3 Moss hummocks

Accumulations of mosses (such as *Sphagnum*) which form low mounds above the ground surface. This creates a refuge from waterlogged ground conditions in wetland macrohabitats.

### **1.3.2. In herb-layer plants (gen.)**

Larvae live within and feed within herb-layer plants in general.

#### *1.3.2.1. In leaves/stems.*

Larvae live within leaves and/or stems, and feed on them. This category includes leaf-miners which spend some or all of their larval development within the mine, in some instances also pupating in the mine. It also includes species which develop in leaf-stems, sometimes as part of a life cycle which includes leaf-mining.

#### *1.3.2.2. In galls*

Larval development takes place partly or fully in galls induced by the larva (e.g. *Adaina microdactyla* on *Eupatorium cannabinum*).

#### *1.3.2.3. In fruiting bodies*

Larvae live partly or wholly in fruiting bodies and feed in them. These include seeds, nuts, berries, fruits, pods and cones.

### **1.4. Timber (gen.)**

Larvae live in, and feed on dead wood, or on the hyphae of fungi growing on dead wood.

#### **1.4.1. Standing**

Larvae live in, and feed on standing dead wood.

#### **1.4.2. Fallen**

Larvae live in, and feed on bark of dead fallen wood (e.g. *Batia lunaris*).

#### **1.4.3. Stumps**

Larvae live in and feed on decaying wood of stumps.

## 2. Among/under surface debris (gen.)

Larvae live in, and feed on surface debris; e.g. decaying leaves.

### 2.1. Dung

Larvae live in, and feed on dung (e.g. *Monopis weaverella* on fox faeces, *Blastobasis lignea* on bird droppings).

### 2.2. Litter (gen.)

Larvae live amongst, and feed on litter, such as floor sweepings; also on leaf-litter.

#### **2.2.1. Litter – forest**

Larvae live amongst surface litter on the forest floor where they feed on decaying leaves, conifer needles, etc.

#### **2.2.2. Litter – herb layer**

Larvae live within, and feed on decaying plant material in the herb layer.

### 2.3. On dried/stored plant material

Larvae live in warehouses, grain stores, barns, outhouses, and domestic premises, where they feed on grain, cereals, nuts, rice, etc.

### 2.4. In nests of social insects

Larvae live in nests of Hymenoptera at ground level, including beehives. Some are tended by ants, and feed on broods of ants (e.g. *Maculinea arion*); others feed on nest refuse (*Myrmecozela ochraceella*). Species such as the Bee Moth, *Aphomia sociella*, live in beehives where they feed on the comb.

### 2.5. In bird nests

Larvae live in birds' nests at ground level, where they feed on feathers and other bird refuse (e.g. *Endrosis sarcitrella*)

### 2.6. On dead insects

Larvae feed on dead insects (e.g. *Diplodoma herminata*, *Blastobasis laticolella*), usually in association with decaying plant matter.

## 3. Below ground

### 3.1. Root Zone (gen.)

Larvae live in or on plant roots where they eat the roots (e.g. the cutworms (Noctuidae) and *Dichrorampha* spp. (Tortricidae)).

#### **3.1.1. Grass-roots**

Larvae live in or close to roots of grasses and feed on them (e.g. Crambinae, many Noctuidae). The grass-root zone may also be the hibernating location of many non-feeding larvae.

### **3.1.2. Bulbs/tubers**

Larvae live within and feed on plant tubers or bulbs (e.g. *Dichrorampha* spp. on “rootstock” – Emmet (1991)).

### **3.1.3. Stem bases**

Larvae live in or on stems bases and feed in or on them.

## 3.2. In bird or mammal nests

Larvae live in below-ground bird or mammal nests or burrows, where they feed on fur, feathers and bedding.

## 3.3. In underground structures

In artificial underground structures, such as cellars, abandoned wartime bunkers, railway tunnels, etc. These species may also occur in caves, but no literature references to this have been found.

## *4. On/in water plants (gen.)*

Larvae live in/on aquatic plants and feed in/on them above or below the surface of the water.

### 4.1. On/in Emergent water plants (gen.)

Larvae live in/on emergent water-plants and feed in/on them above or below the surface of the water.

#### **4.1.1. On/in emergent water plants – out of water**

Larvae live in emergent water plants above water, and feed on them by mining or boring the stems (e.g. *Elachista scirpi* mining in stems of *Bolboschoenus maritimus*, *Archanara geminipuncta* boring in stems of *Phragmites australis*).

#### **4.1.2. On/in emergent water plants – below surface**

Larvae live on and feed on the foliage of water plants below the surface of the water (China-marks moths, Pyralidae). The larvae may feed by mining, from a case or in a spinning (Emmet, 1991).

### 4.2. On/in Submerged water plants

Feeding on water plants well below the surface of the water: the larva of the Pyralid *Acentria ephemerella* lives and feeds at depths of up to 2m below the surface, on *Elodea*, *Potamogeton* and *Chara* spp.

## **Hibernation / Overwintering Zone**

### *5. Above ground surface (gen.)*

The species hibernates or overwinters above the surface of the soil

#### 5.1. trees

The species hibernates or overwinters in/on trees

#### 5.1.1. Rotten wood

The species hibernates/overwinters in rotten wood on standing living trees (e.g. *Batia lambdella*).

#### 5.1.2. Trees/under bark

The species hibernates/overwinters in/under bark on standing trees (e.g. *Esperia sulphurella*).

#### 5.2. plant stems

The species hibernates/overwinters in plant stems (many spp.).

#### 5.3. in timber (gen.)

The species hibernates/overwinters in timber.

##### 5.3.1. Standing timber

The species hibernates/overwinters in standing timber.

##### 5.3.2. Fallen timber

The species hibernates/overwinters in fallen timber (e.g. *Nemapogon* spp., Tineidae).

#### 6. On the ground (gen.)

The species hibernates/overwinters on the ground.

#### 6.1. tussocks and hummocks

##### 6.1.1 Tussocks of grasses, sedges and rushes

In addition to the many species that feed in tussocks in the summer and autumn, many others, which feed on seeds and foliage, descend to the bases of tussocks to overwinter.

##### 6.1.2 Hummocks of small forbs

The species hibernates/overwinters in hummocks of small forbs such as *Thymus* sp., *Lotus corniculatus*, which often develop on ant nests.

##### 6.1.3 Moss hummocks

The species hibernates/overwinters in accumulations of mosses (such as *Sphagnum*) which form low mounds above the ground surface. This creates a refuge from waterlogged ground conditions in wetland macrohabitats.

#### 6.2. litter (gen.)

Various stages of the species hibernate/overwinter on the ground in litter.

##### 6.2.1. In herb layer litter

Various stages of the species hibernate/overwinter on/in herb layer litter.

##### 6.2.2. In forest litter

Various stages of the species hibernate/overwinter on/in forest litter; this category includes many species which mine leaves and remain in them after leaf fall.

### 6.2.3. Under stones/boulders

Various stages of a wide range of species hibernate/overwinter under stones.

### 7. Below ground

#### 7.1. Bulbs/stem bases

Larvae overwinter/hibernate in bulbs or stem bases, some also pupate at this time.

#### 7.2. in soil

Adults and/or larvae overwinter/hibernate in the soil.

#### 7.3. In caves and underground structures

Adult stages of a wide range of species have been recorded overwintering in underground structures, caves and crevices (narrow openings such as widened cracks in rocks). There is no available evidence to differentiate between the use of these three types of structures by the various species associated with this category.

### 8. In nests of social insects

Larvae overwinter/hibernate in nests of social insects (ants, bees).

### 9. In submerged water plants

Larvae hibernate/overwinter in submerged plants (e.g. *Acentria ephemerella*, Pyralidae).

## Soil / Water Conditions

### 10. Soil Drainage

#### 10.1. Poorly drained/gleyed:

Larvae live in poorly drained/gleyed soil and feed on nearby plants, etc.

#### 10.2. Freely draining:

Larvae live in freely draining soil and feed on nearby plants, etc.

### 11. Water trophic status

Note: the British aquatic Lepidoptera appear to occur in a wide trophic range of waters; there is little indication of trophic tolerance limits, apart from an avoidance of heavily polluted waters.

#### 11.1. Oligotrophic

Larvae live on aquatic plants in oligotrophic water

#### 11.2. Mesotrophic

Larvae live on aquatic plants in mesotrophic water

### 11.3. Eutrophic

Larvae live on aquatic plants in eutrophic water

#### *12. Water movement*

All the British aquatic Lepidoptera occur in still or slow-flowing waters; two of them, *Nymphula nitidulata* and *Paraponyx stratiotata*, are recorded from river banks by Emmet (1991); but any of the five native aquatic species may be found in still water.

#### 12.1. Slow moving

Larvae live and feed on plants in slow-moving water.

#### 12.2. Standing

Larvae live and feed on plants in standing water.

### **Oviposition Site**

#### *13. within plant*

The adult lays eggs within plants. This feature is widespread among a range of families across the Lepidoptera.

#### *14. on plant*

The adult lays eggs on the external surface of plants. This feature is also widespread in many families of the Lepidoptera.

#### *15. on other surfaces*

The adult lays eggs on surfaces other than plants. One example of this is the genus *Cryphia*, in which oviposition occurs on walls close to the lichens on which the larvae feed.

#### *16. dropped in flight*

The adult oviposits by dropping eggs while flying. This feature occurs especially in the Hepialidae, but is also recorded for *Cerapteryx graminis* (Noctuidae) and several other species.

#### *17. unknown*

The oviposition site is not known. This is the case in the Micropterigidae and in a number of species in other families.



## TRAITS OF IRISH LEPIDOPTERA

### Introduction

This document defines an array of traits of Irish and British Lepidoptera. This array is based on the traits defined in the *Syrph The Net* database (Speight & Castella, 2005), but with the modifications required to set up a traits set specific to Lepidoptera.

The accompanying traits spreadsheets provide, in coded form, data on the traits of the resident Irish Noctuidae species. The coding system used is as follows:

3 = maximum association,

2 = moderate association,

1 = minor association.

blank = no association.

In the spreadsheet, the species number refers to the Bradley & Fletcher (1986) checklist species number, as used in Emmet (1991).

### Summary table

#### Food type (larvae)

- living plants
- living animals
- saproxylic
- saprophages
- unknown

#### Commensalism (larvae)

- commensal
- non-commensal

#### Duration of development (egg/larva/puparium)

- <2 months
- 2-6 months
- 7-12 months
- >1 year

#### Overwintering phase

- unknown
- ovum
- larva

pupa

adult

**Inundation tolerance (larvae)**

unknown

non-tolerant

tolerant

**Number of generations per year**

<1

1

2

>2

**Food sources (adults)**

nectar-bearing flowers (gen.)

trees

lianas, upward climbing

shrubs/bushes

herbs

anemophilous flowers

leaf surfaces

sap-runs

none known

**Flight time**

diurnal

crepuscular

nocturnal

**Migratory status (adult)**

non-migrant

migrant (gen.)

weakly migratory

strongly migratory

**Flight period**

January

1st. half

2nd. half

February

1st. half

2nd. half

March

1st. half

2nd. half

April

1st. half

2nd. half

May

1st. half

2nd. half

June

1st. half

2nd. half

July

1st. half

2nd. half

August

1st. half

2nd. half

September

1st. half

2nd. half

October

1st. half

2nd. half

November

1st. half

2nd. half

December

1st. half

2nd. half

## Lepidoptera trait definitions

### *Food type: larval food type*

Larval food categorised according to whether it is living plants, living animals, dead or dying wood, or decomposing organic matter.

The overwhelming majority of the Irish Lepidoptera use living plants as their larval food. These species feed mainly on the foliage, but root-feeders are well represented in such groups as the Noctuidae, a group that also includes many stem-feeders. Stem-feeding is found in many other families, e.g. the Tortricidae. Feeders on fruiting bodies are well represented in the Tortricidae.

### *Living plants*

Tissues of living, non-woody plants.

### *Living animals*

Species whose larvae are predatory. Several species may attack and consume other larvae, including conspecifics, e.g. *Chilodes maritimus* and *Cosmia trapezina* (Noctuidae).

### *Saproxylic species*

Species whose larvae feed on dead or dying wood or the activities of other saproxylics. Only a very small number of Irish Lepidoptera feed on dead or decaying wood. Those involved occur in the Tineidae and Oecophoridae. They are very poorly represented in Ireland, also in relation to the British fauna.

### *Saprophages*

Species whose larvae feed on dead or decaying animal matter. A few Irish Tineidae feed on the remains of dead insects and other ceratinous substances such as fur and hair.

### *Unknown*

The larval feeding habits of some groups, e.g. family Micropterigidae, remain very poorly known.

### *Commensalism*

Larvae living commensally, or quasi-commensally with species of Hymenoptera Aculeata. This is only tentatively included. It occurs in non-Irish Lycaenidae, where species such as *Maculinia arion* are commensals in ant nests. It may also occur in some Irish Lycaenidae, such as *Cupido minimus* and *Lycaena phlaeas*, which lives in close proximity to ants, and in which ant-larva interactions have been observed.

### *Duration of development*

The length of time taken for development, from egg deposition to eclosion of the adult insect. The duration of the each stage is in general related to the size of the species and the season in which it

occurs. A characteristic of many of the smaller species is their short period of activity, an extreme case being found in the Eriocraniidae, in which the pupal stage lasts about ten months. Larval development in any particular year is strongly influenced by ambient temperature, but there is also evidence that photoperiod is the dominant influence on emergence of the adults in some families. Certain species, such as *Euphydryas aurinia*, depend strongly on thermoregulation for larval activity including feeding.

#### *Overwintering stage*

The phase of the life cycle in which the species overwinters. Irish Lepidoptera can overwinter in any stage, but in general pass it in one of the inactive stages, such as ovum or pupa, or in larval diapause. A smaller number overwinter as hibernating adults, and a relatively small number of species, mainly Macrolepidoptera, have their flight period in winter. Species that overwinter as larvae within the puparium are coded in the larva category.

#### *Inundation tolerance*

The capacity of larvae to withstand submersion in water, categorised primarily according to the extent to which they exhibit relevant morphological adaptation in the respiratory processes or tegument. The six aquatic Pyralid species develop in air pockets under water. Otherwise little is known about the tolerance of Irish Lepidoptera in general to inundation, but it is thought that very few, if any lepidopterous larvae can withstand submersion in water. A few species, such as *Odontognophos dumetata hibernica* seem to show a preference for sites that are inundated during larval development.

#### *Number of generations per year*

The number of successive life cycles completed by a species during a year. The majority of species are univoltine in Ireland; but there is a substantial minority of bivoltine species; and a much smaller number of multivoltine species. A small number of mainly large species have a developmental stage, which lasts two years, e.g. *Lasiocampa quercus* (Lasiocampidae), and the Noctuid *Xestia alpicola* (Noctuidae), which occurs at high altitude. From about the 1990's onwards several species have exhibited an extra generation, at least in the south, probably as the result of climatic warming.

#### *Food sources – adults*

Sources of sugars or protein recorded as used by adult Lepidoptera as food.

#### *Nectar-bearing flowers*

Plants with flowers that produce both nectar and pollen.

**Nectar-bearing flowers of trees.** Woody plants normally 2m or more at maturity. While there are few observations to confirm this, the nectar-bearing flowers of trees are likely to be an important food source for canopy-dwelling species.

**Nectar-bearing flowers of lianas, upward growing.** Woody or herbaceous plants climbing 2m or more above the ground. The blossom of Ivy, *Hedera helix*, is an important source of nectar for autumnal, winter and spring adults of many Noctuidae in particular.

**Nectar-bearing flowers of shrubs.** Woody plants up to 2m. This category is sub-divided into tall shrubs (0.5-2m) and low shrubs (< 0.5m). Nectar-bearing flowers of shrubs are widely utilised, mainly by the larger Lepidoptera.

**Nectar-bearing flowers of herbs.** Non-woody plants. This category is sub-divided into tall herbs (> 0.5m) and low-growing plants (< 0.5m). Nectar-bearing flowers of tall herbs are widely utilised by both the smaller and larger Lepidoptera. Nectar-bearing flowers of low-growing plants are mainly utilised by the smaller Lepidoptera, many of which fly exclusively close to the ground.

#### *Anemophilous flowers*

Plants with flowers that produce only pollen (i.e. that are without nectar). The Micropterigidae are the only Irish Lepidoptera that have mouthparts capable of feeding on pollen. Members of the Micropterigidae are known to feed on pollen of *Carex* spp. and probably other monocotyledonous plants. This is the only confirmed use of anaemophilous flowers by Irish Lepidoptera. Micropterigidae also feed on pollen from *Ranunculus* spp. and other broad-leaved herbs but it is not known if they feed on pollen from anaemophilous broad-leaved herbs.

#### *Leaf surfaces*

Upper surface of leaves of large-leaved herbs and shrubs where honey-dew is deposited.

#### *Sap-runs*

Wet tree wounds maintained by sap and/or the activities of fungi or saproxylic invertebrates, especially those of trees with sugar-rich sap (i.e. *Acer* spp.). Adults of various species feed on sap-runs, and a variant of this is the use of "sugar" as bait by moth collectors. This bait may include treacle, fermenting alcohol, etc.

#### *Unknown*

The adult food of many Lepidoptera remains unknown, and in some cases it is suspected, or known that the adults do not feed at all.

#### *Flight time*

The time of day during which the adults habitually fly.

**Diurnal.** Adults habitually fly during the daytime (i.e., between sunrise and sunset). Apart from the butterflies, many moths fly, at least in part diurnally. This is particularly so in certain families of Microlepidoptera, such as the Nepticulidae and Gracillariidae, which often fly both diurnally and crepuscularly. Some species of Tortricidae and Pyralidae fly only in sunshine.

**Crepuscular.** Adults habitually fly during twilight (i.e., between full night and sunrise or between sunset and full night). Crepuscular flight is widespread in the Lepidoptera apart from the

butterflies. It is particularly prominent in groups such as the Tortricidae, Pyralidae and Geometridae. Many of the predominantly nocturnal species also become active at various stages of twilight.

**Nocturnal.** Adults habitually fly during the night (i.e., the time from dusk to dawn when no sunlight is visible). The great majority of the larger moths fly nocturnally, and this is true of all members of some families such as the Notodontidae. Many of the Microlepidoptera also fly nocturnally, but it is most characteristic of the larger species of these, such as the Gelechiidae and Oecophoridae; it is also a feature of many species of Tortricidae.

#### *Migratory status*

Categorisation of the species according to the extent to which they are known to undertake long-distance movements.

**Non-migratory.** The majority of Irish Lepidoptera species are non-migratory, and the Microlepidoptera in particular contain very few migratory species. A few species appear to have recently become resident as a result of repeated migration; such a species is *Cryptophlebia leucotreta* (Tortricidae).

**Weakly migratory.** Species occasionally recorded as exhibiting migrational activity. Occasional migration has been observed in some butterflies in particular, e.g. *Aglais urticae* (Small Tortoiseshell) and *Inachis io* (Peacock); dispersal flights of females are known in *Euphydryas aurinia* (Marsh Fritillary). Species such as the *Pieris brassicae* (Large White) and *Phlogophora meticulosa* (Angle Shades), although partly migratory, are not included here [see below].

**Strongly migratory.** Species repeatedly recorded as undergoing migrational activity. A fairly large number of species, especially in the family Noctuidae can be described as strongly migratory Irish species. Species such as *Pieris brassicae* (Large White) and *Phlogophora meticulosa* (Angle Shades) that maintain resident populations but also migrate regularly are included here, because the portion of their population that migrates is strongly migratory.

#### *Flight Period*

The period of the year during which the adults of a species occur (for species in which adults overwinter, the period spent inactive while overwintering is not included as part of the flight period). The main flight period of a species is coded "3"; seasons in which the species is irregularly seen, probably largely dependant on weather conditions, are coded "2". Rare occurrences, which may indicate additional broods are indicated by "1". Some species produce a second generation only in the southern part of the country, and this is coded as "2"

## SPECIES ACCOUNTS OF IRISH BUTTERFLIES (RHOPALOCERA)

### Introduction

#### *Content of the species accounts*

**Species:** All resident Irish Rhopalocera (butterflies) are covered in this account, including three regular migrant species that are believed or known to breed here intermittently (*Colias croceus*, *Cynthia cardui*, *Vanessa atalanta*). Also included is *Polygonia c-album*, which has been intermittently recorded in recent years, along with the recently discovered *Thymelicus lineola*, and *Erebia epiphron*, which is believed to be extinct.

**Species name:** The species name is followed by the citation of author and date of publication. Where the species was originally described in a different genus, the original genus is indicated in brackets. Nomenclature follows that used by the NBN Gateway (2006). This is followed by the English name in small capitals.

**Nomenclature:** The position of the species within subfamily, family, order and class, as applied by Karsholt & Razowski (1996).

**Synonymy:** Specific synonyms are listed chronologically; the synonyms quoted are based mainly on Kloet & Hincks (1972), but include more recent modifications. Misidentifications are indicated by “sensu”, and where this applies to several authors it is indicated by “sensu auctt.”. Published misspellings are also indicated.

**Subspecific status:** This refers only to subspecies recorded from Ireland. In general the designation of subspecies follows Emmet & Heath (1989), but it must be emphasized that opinions differ widely on the designation and definition of many subspecies in the Lepidoptera.

**Identification:** The sources of identification of the adult are indicated. Although there are illustrations of the adults in numerous British and other publications, only the major recent British publications are indicated here. Reference is also made to sources for identification of the genitalia and the larvae.

**Macrohabitats:** This refers only to the macrohabitats in which the species can breed. Macrohabitat categories used are defined in Bond & Gittings (2004a). The macrohabitats text in these species accounts only refers to the main macrohabitats used (i.e., coded 3 in the spreadsheets; see below). The macrohabitat spreadsheets provide fuller description of the macrohabitat preferences.

**Adult microsites:** This refers to the microsite in which the adults can be found; both when active and when resting. For some species there is little published information on roosting sites.

**Flight Period:** The usual Irish flight period is indicated, as well as exceptional instances such as additional broods or unusually prolonged flight seasons due to unusual weather conditions.

**Oviposition site:** This refers to the oviposition method used by the female, and to the selection of site, on or within a substrate, based mainly on information in Emmet & Heath (1989). The category “within plant” here implies either within the tissues of the plant, or concealed within the seed-capsules, leaf-sheaths or flowers.



**Larval microsites:** The microsite in which the larva lives and feeds. The microsite categories used are based upon those in Bond & Gittings (2004b; see below).

**Food and feeding habitats:** The foodplant or other food substance used by the larva. The location and pattern of feeding are also indicated, as is the stage that overwinters/hibernates. The main sources of information used are Emmet & Heath (1989, 1991) and Asher *et al.* (2001).

**Effectiveness of different sampling methods:** The most efficient means of finding the adult is indicated, and where information is available, also the immature stages. Due to paucity of fieldwork in Ireland, very little is known about the specific requirements for finding the immature stages of many species.

**Range.** Distribution data for Ireland are based on maps and information available at [www.butterflyireland.com](http://www.butterflyireland.com). Data for Britain are derived from distribution maps provided by *Butterfly Conservation* which are accessible on-line from the National Biodiversity Network Gateway at [www.searchnbn.net](http://www.searchnbn.net). Distribution data for the remainder of Europe are derived mainly from Higgins & Riley (1980) and Lafranchis (2004), but recent information on Scandinavia has also been obtained from Gustafsson (2004) and *Norges Sommerfugler* (2001).

**Status:** Whether the species is resident, migratory or partially migratory.

**Conservation:** The risks, if any, to the species in Ireland are discussed. Reference is made to the British conservation status where appropriate.

Each species report concludes with the “**Compiler**” and “Date of compilation”.

#### *Accompanying spreadsheets*

In the spreadsheets, the “B. & F. No.” refers to the Bradley & Fletcher (1986) checklist species number, as used in Emmet (1991).

#### *Macrohabitats preferences of Irish Rhopalocera (Butterflies)*

The macrohabitat spreadsheets provide, in coded form, data on the macrohabitat preferences of Irish butterflies. The macrohabitat categories are defined in Bond and Gittings (2004a). The coding system used is as follows:

3 = maximally preferred macrohabitat, the presence of the species would be expected in this macrohabitat/predicted for this macrohabitat.

2 = preferred macrohabitat, the presence of the species would be predicted for this macrohabitat.

1 = the species can occur in this macrohabitat under certain circumstances but would not generally be predicted for this macrohabitat.

blank = the species does not occur in this macrohabitat.

#### *Microsite preferences of Irish Rhopalocera (Butterflies)*

The microsites spreadsheets provide, in coded form, data on the microsites used for larval activity and feeding and for overwintering by Irish butterflies. The microsite categories used are defined in Bond & Gittings (2004b) with the following modifications:

- The hibernation/overwintering zone category “Plant stems” (5.2) in Bond and Gittings (2005b) has been replaced by “Herb layer (gen.)” (5.2) and two new sub-categories added: “In plant stems” (5.2.1) and “On plant stems and foliage” (5.2.2).
- A new hibernation/overwintering zone category “In lianas” (5.4) has been inserted.
- The hibernation/overwintering category “In caves and underground structures” (7.3) has been replaced by “In caves and underground structures, in/on buildings” (7.3).

The coding system used is as follows:

3 = maximally preferred microsite feature.

2 = preferred microsite feature.

1 = the species can occur with this microsite feature under certain circumstances but would not generally be predicted to occur with this feature.

blank = the species does not occur with this microsite feature.

Two species included in these species accounts (*Colias croceus* and *Cynthia cardui*) do not successfully overwinter in Ireland and are, therefore, not coded in the hibernation/overwintering section of the microsites spreadsheets.

#### *Traits of Irish Rhopalocera (Butterflies)*

The traits spreadsheets provide, in coded form, data on the traits of Irish butterflies. The trait categories used are defined in Bond & Gittings (2006). The coding system used is as follows:

3 = maximum association.

2 = moderate association.

1 = minor association.

blank = no association.

## Species Accounts

### *Thymelicus lineola*

**Species name:** *Thymelicus lineola* (Ochsenheimer, 1808) (*Papilio*). English name: ESSEX SKIPPER.

**Nomenclature:** Hesperinae: Hesperidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** The adult and two variants are illustrated in Emmet & Heath (1989); it is also illustrated in Higgins & Riley (1980) and Lafranchis (2004). Male and female genitalia are illustrated (as *Adoepa lineola*) in Pierce & Beirne (1938) and in Emmet & Heath (1989), while the larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Unimproved dry grassland, field margins.

**Adult microsites:** Adults fly rapidly in sunshine close to the ground in grassy locations, or perch for long periods on warm, bare patches of ground. The males, which are territorial, also perch on or near prominent patches of flowers, while females seek out oviposition sites.

**Flight Period:** Late June to late August, peaking about the beginning of August.

**Oviposition site:** In low or tall herbs, within a rolled leaf-sheath on a grass-stem.

**Larval microsites:** On tussocks of grasses; on herb-layer stems and foliage.

**Food and feeding habitats:** The larva develops and hibernates within the eggshell prior to hatching in the spring. Within a few days of starting to feed it spins together the edges of a leaf blade and uses this as a tubular retreat. It emerges from this to feed on the leaf-tips. The main foodplant is *Dactylis glomerata*, but other foodplants include *Holcus mollis*, *Elytrigia repens*, *Phleum pratense*, *Alopecurus pratensis* and *Brachypodium sylvaticum*. It pupates about late May in a silk cocoon enclosed within leaf blades at the base of the foodplant

**Effectiveness of different sampling methods:** The adults are readily found in sunny conditions, but their rapid erratic flight makes capture difficult. They have also been observed to spend long periods in vegetation, where they are likely to be overlooked. According to Heath *et al.* (1984) larvae can be found by day by careful searching.

**Range:** Discovered at one site in South Wexford in summer 2006 (Goodwin & Wilson, pers. comm.), and initially misidentified as *T. sylvestris* (Wilson *et al.*, 2007). It was again seen in numbers at this site in 2007, and it was also observed at sites 6km northeast and 7km southeast of the original site (Wilson *et al.*, in press).

**Status:** Generally distributed over the southeast and south central England, East Anglia and the East Midlands, extending locally to South Yorkshire, Nottinghamshire and Derbyshire; also westwards to Herefordshire, Gloucestershire and Warwickshire; with local populations in Somerset, Devon and Cornwall. It has been extending north and west since it was first recognised

as resident in England as recently as 1989. It was recently discovered in southern Scotland for the first time, where it was also initially misidentified as *T. sylvestris*; a species which was already known from considerably closer to the Scottish border. Generally distributed over Central and Southern Europe, also in Sicily. It extends northwards to the southeast of Norway, southern and central Sweden, southern and central Finland and the Baltic States.

**Status:** Unknown, but probably introduced.

**Conservation:** Not of conservation concern.

**Compiler:** K. G. M. Bond. Date of compilation: 3<sup>rd</sup> March 2008.

### *Erynnis tages*

**Species name:** *Erynnis tages* (Linnaeus, 1758) (*Papilio* (*Plebejus*)). English name: DINGY SKIPPER.

**Nomenclature:** Pyrginae: Hesperiiidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: Specimens from the Burren area of Co. Clare are referable to subsp. *baynesi* Huggins, 1956. These are characterised by distinct paler forewing markings.

**Identification:** The adult and some of its variants are illustrated in Emmet & Heath (1989). Higgins & Riley (1980) and Lafranchis (2004) also illustrate the adult. Male and female genitalia are illustrated in Pierce & Beirne (1938); while the larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Unimproved dry calcareous grassland; limestone pavement.

**Adult microsites:** The adults fly rapidly and erratically close to the ground in sunny conditions; they also bask with opened wings and often land on bare ground, but rarely on flowers. In dull weather and at night they rest on dead heads of *Centaurea nigra* or grass inflorescences where their cryptic coloration is very effective.

**Flight Period:** From about mid-May to late June, peaking at the end of May and beginning of June.

**Oviposition site:** On low herbs; laid on the upper surface near the base of a leaflet, or on the petiole at the junction of the larger leaflets.

**Larval microsites:** On low-growing plants and small-forb hummocks of the herb layer; hibernating on herb-layer stems, foliage and litter.

**Food and feeding habitats:** The larva feeds externally on the foliage of *Lotus corniculatus*; making spinnings in the foliage. It constructs a hibernaculum, usually on the foodplant when full-grown in mid-August; overwinters there and pupates in it about mid-April.

**Effectiveness of different sampling methods:** Adults may be found flying rapidly in sunshine, close to the ground, usually near the foodplant.

**Range:** Widely distributed over the limestone districts of the west from parts of north Co. Limerick to South Mayo, and also in Sligo and Donegal; more local in the Midlands and with very isolated colonies in the east and southeast. It also occurs locally on the north shore of Galway Bay

on granite bedrock. In Britain it is widely distributed but local in England and Wales, occurring mainly on chalk and limestone, while in Scotland it is mainly coastal and found locally in the south and northeast. Widespread over much of Continental Europe, but absent from the Mediterranean islands, Finland, and from Norway and Sweden north of about 62°N; also absent from much of northern Germany, The Benelux countries, the Baltic States and southern Iberia.

**Status:** Local resident.

**Conservation:** Although many of its colonies in the limestone districts of the west seem to be under little threat, the smaller colonies elsewhere are vulnerable to building development and agricultural improvement. In Britain, where many of the colonies are on brownfield sites, it is in decline, so much so that it is now categorised as a *Candidate Priority Species* (Fox *et al.*, 2006).

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Leptidea sinapis*

**Species name:** *Leptidea sinapis* (Linnaeus, 1758) (*Papilio* (*Danaus*)). English name: WOOD WHITE.

**Nomenclature:** Dismorphiinae: Pieridae: Lepidoptera: Insecta.

Synonymy: *candidus* (Retzius, 1783)

Subspecific status: Irish specimens have been named subsp. *juvernica* Williams, 1946, but as the type specimens were recorded mainly from parts of Ireland where *L. reali* has recently been recognised, it would seem more appropriate to apply the subspecies to that species.

**Identification:** Spring and summer generation adults are illustrated in Heath & Emmet (1989). The adult is also illustrated in Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). The female genitalia are illustrated in Pierce & Beirne (1938); the figure of the male genitalia labelled "*sinapis*" appears to represent *L. reali*. The male and female genitalia of this species are illustrated and compared in Nelson *et al.* (2001). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Grassy forest clearings; limestone pavement.

**Adult microsites:** Adults fly in sunny conditions without a characteristic slow, flapping flight close to the ground, especially among tall herbs and in scrub. The males patrol territories, while the females spend much of their time on flowerheads, or searching for oviposition sites. In dull weather adults may be found resting on flowerheads.

**Flight Period:** From about May 20<sup>th</sup> to the end of June. Occasional 2<sup>nd</sup> brood specimens have been recorded in the Burren, Co. Clare, in late July and early August.

**Oviposition site:** Eggs are laid directly onto the foodplant, usually beneath a leaflet or bract, with a preference shown for tall protruding plants.

**Larval microsites:** On low-growing plants and small-forb hummocks of the herb layer; hibernating on herb-layer stems and foliage.

**Food and feeding habitats:** Oviposition has been observed in Ireland on *Lotus corniculatus* and *Lathyrus pratensis*; also on *Vicia cracca* (S. Jeffcoate, pers. comm.). In Britain, *Lathyrus montanus*, *L.*

*linifolius* and *Lotus pedunculatus* have also been recorded as foodplants. The larva feeds externally on the foliage, pupating around September. The pupa, which overwinters, is attached to an upright stem of a plant other than one of the foodplants, often on a grass stem.

**Effectiveness of different sampling methods:** Adults may be searched for in sunny conditions in open scrub in limestone districts. Ova and larvae can be found by day on the foliage of the foodplants in July.

**Range:** Only known at present from parts of cos Clare and Galway. It is widespread and locally common on the limestone of the Burren, Co. Clare, and also occurs locally further south near Ennis and near Newmarket-on-Fergus (Lough Rosroe); in Co Galway it occurs in the limestone areas west of Lough Corrib near Oughterard and Moycullen; east of Lough Corrib it occurs north of Galway City in the Menlough area, and further northeast it has been found at Carnoneen, near Lackagh. Southeast of Galway City it has been found between Ardrahan and Craughwell. In Britain this species is found locally in central and southern England, with an isolated colony on Morecambe Bay. Widely distributed over much of mainland Europe, extending to about the Arctic Circle in Fennoscandia; also present on the Mediterranean islands, but absent from much of northern Germany and the Benelux countries.

**Status:** Local resident.

**Conservation:** The Irish population is probably relatively stable within its limited area of distribution, but loss of scrub and insensitive cutting of road verges could present a threat in some areas.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Leptidea reali*

**Species name:** *Leptidea reali* Reissinger, 1989 (Linnaeus, 1758). English name: REAL'S WOOD WHITE.

**Nomenclature:** Dismorphiinae: Pieridae: Lepidoptera: Insecta.

Synonymy: *sinapis* sensu auctt.

Subspecific status: None.

**Identification:** The adult is illustrated in Thompson & Nelson (2006). It is uncertain to which species the illustration of *L. sinapis juvernica* in Emmet & Heath refers; while Lafranchis (2004) refers to, but does not illustrate the adult. The genitalia are illustrated and compared with those of *L. sinapis* by Nelson *et al.* (2001). The illustration of the male genitalia purporting to represent *Leptidea sinapis* in Pierce & Beirne (1938) appears to represent *L. reali*.

**Macrohabitats:** Grassy forest clearings.

**Adult microsites:** Adults fly in sunny conditions without a characteristic slow, flapping flight, especially among tall herbs on woodland margins. The males patrol territories, while the females spend much of their time on flowerheads or searching for oviposition sites. In dull weather adults rest on flowerheads, such as those of *Cardamine pratensis*.

**Flight Period:** From about 20th May to the end of June. As with *L. sinapis*, 2<sup>nd</sup> brood adults are occasionally recorded about the end of July.

**Oviposition site:** The eggs are laid directly onto the foodplant, usually beneath a leaflet.

**Larval microsites:** On low-growing plants and small-forb hummocks of the herb layer; hibernating on herb-layer stems and foliage.

**Food and feeding habitats.** In Ireland the larva has been found on *Lathyrus pratensis*, and oviposition has been observed on *Lotus corniculatus* (pers. obs.). As with *L. sinapis*, pupation is thought to occur about September, with the pupa overwintering attached to a plant stem.

**Effectiveness of different sampling methods:** Adults can be found flying in sunshine close to the ground in woodland rides and on road verges, while ova and larvae can be found on the foliage of the foodplants in July

**Range:** Widely distributed but local over much of Ireland. It appears to be absent from extensive montane and blanket bog areas of the west, and is scarce in many areas of intensive agriculture. This species has not been recorded from Britain. Known locally from widely scattered localities over mainland Europe, also from Corsica; extending north to about 64°N in Sweden. It is likely that that species remains undetected in many localities due to confusion with *L. sinapis*.

**Status:** Resident.

**Conservation:** Although this remains a widely distributed species in Ireland; there is strong evidence that it has declined in many areas, especially in the south and east. It is vulnerable to agricultural improvement, and to the loss of road verge flora due to insensitive cutting, scrub encroachment and increasing shade from maturing conifers.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Colias croceus*

**Species name:** *Colias croceus* (Fourcroy, 1785) (*Papilio*). English name: CLOUDED YELLOW.

**Nomenclature:** Coliadinae: Pieridae: Lepidoptera: Insecta.

Synonymy: *edusa* (Fabricius, 1787), nec (Fabricius, 1777); *electra* sensu Lewin, 1795; *chrysotheme* sensu Stephens, 1827; *myrmidone* sensu Humphreys & Westwood, 1841.

Subspecific status: None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Unimproved dry calcareous grassland; improved grassland (hay); coastal grey dunes.

**Adult microsites:** Adults fly actively over flowery meadows, and rest on flowerheads of low herbs in dull weather.

**Flight Period:** Arriving adults may be seen on the wing between early April and late June. The adults, at least some of which are offspring of spring arrivals may be seen from August to about mid-October, but mainly in late August and September, but adults may also be seen at any other time between April and September.

**Oviposition site:** On a leaf of the foodplant, usually on the upperside.

**Larval microsites:** On low-growing plants of the herb layer; unable to overwinter, as the larva is killed by frost or prolonged damp.

**Food and feeding habitats:** *Trifolium* spp. and *Medicago sativa* are the usual foodplants, but *Lotus corniculatus* may also be used. The larva may occur anytime from late June to November, but cannot survive late autumn frost or prolonged dampness, and there is no record of survival overwinter.

**Effectiveness of different sampling methods:** Adults are most easily found in sunshine in flower-rich grassland on southern and eastern coasts during and immediately after periods of migration. The immature stages are rarely recorded in Ireland.

**Range:** Occurs sporadically in years of migration, most often found on or near coasts in the south. It is rarely seen in the northwest, even in good migration years. Common in southern Britain in years of strong migration, becoming progressively scarcer and more confined to the coast further north, but occasionally reaching as far as Shetland. Generally distributed as a resident in Southern Europe, mainly migrant to Central Europe and a progressively rare migrant further north to the extreme south of Fennoscandia and the Baltic States.

**Status:** Migrant.

**Conservation:** This species is of no conservation concern in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Gonepteryx rhamni*

**Species name:** *Gonepteryx rhamni* (Linnaeus, 1758) (*Papilio* (*Danaus*)). English name: BRIMSTONE.

**Nomenclature:** Coliadinae: Pieridae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: Irish specimens are referable to subsp. *gravesi* Huggins, 1956; in which the male upperside forewing is paler, and the hindwing paler and greener; while the female has the forewing with margin greenish yellow, particularly at apex, and the hindwing wholly suffused greenish yellow (Bibby & Emmet, 1989).

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Rich-soil scrub; brook floodplain alluvial forest; hedges; fen carr.



**Adult microsites:** Adults of both sexes fly actively in scrub and on margins of woodland, landing and feeding on flowers, especially purple ones such as *Centaurea nigra*, *Buddleja davidii*, *Lythrum salicaria*, *Arctium*, *Carduus* and *Cirsium* spp. Adults sometimes move to woodland to hibernate, and hibernating adults often choose the dense growth of *Hedera helix* as an overwintering site.

**Flight Period:** Adults may be seen on the wing from about the end of July until early November, but are most common in late August. Post-hibernation adults fly from about mid-March to early June, but overwintering adults may emerge at almost any time in mild sunny conditions.

**Oviposition site:** Usually on the underside of a leaf of the foodplant, but sometimes also on opening buds, or on adjacent wood before the leaves are open. Oviposition can take place at any height up to at least 4m.

**Larval microsites:** On the foliage of trees, saplings and tall shrubs.

**Food and feeding habitats:** The larval foodplants are *Rhamnus cathartica* and *Frangula alnus*, although there are few, if any, Irish observations of the immature stages on the latter. The cryptic larva feeds on the foliage, initially leaving characteristic perforations, but later on entire leaves; in earlier instars resting on the upperside of the leaf, later on a leaf-edge or along a petiole; feeding late May to early July. Pupation occurs in July, the pupa being attached to a pad of silk by its cremaster, usually on the underside of a leaf or stem in low vegetation. Overwintering as a hibernating adult, often in the dense foliage of *Hedera helix*, *Ilex aquifolium* or *Rubus fruticosus* agg.

**Effectiveness of different sampling methods:** The easily recognisable males can easily be found in sunny weather spring to autumn with a short break in July, but the paler females can sometimes be confused with *Pieris brassicae* at distance. Ova and larvae should be searched for at up to 2m in sunlit situations such as southern margins of woodland and north shores of turloughs.

**Range:** Local resident, largely confined to the limestone districts of the West and Midlands, where its main foodplant occurs. Adults are occasionally seen at distances of 20-30km from its nearest known breeding sites. It is locally common in parts of Clare and Galway, especially near turloughs. Common and generally distributed over England as far north as South Cumbria and North Yorkshire, and also in the south and east of Wales; it occurs locally and sporadically further west in Wales and further north in England, and rarely into the south of Scotland. It has recently spread northwards in Northern England. Generally distributed over southern and central Europe, also generally to southern and eastern Fennoscandia, and locally to central Norway and Sweden and to northern Finland.

**Status:** Local resident.

**Conservation:** This species does not seem to under significant threat in most areas, but it has recent been lost as a breeding species in Co. Fermanagh, and the small breeding colony at Killarney needs to be monitored.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Pieris brassicae*

**Species name:** *Pieris brassicae* (Linnaeus, 1758) (*Papilio* (*Danaus*)). English name: LARGE WHITE.

**Nomenclature:** Pierinae: Pieridae: Lepidoptera: Insecta.

Synonymy: *chariclea* (Stephens, 1827).

Subspecific status: None.

**Identification:** The adult is illustrated in Higgins & Riley (1980); Emmet & Heath (1989); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Fallow crops & gardens (ornamental).

**Adult microsites:** Adults fly actively and rapidly in sunshine over a wide range of habitats, but especially over and among *Brassica* crops. According to Feltwell (1989) adults fly between 10.00 and 20.00 hrs.

**Flight Period:** Adults fly mainly in two generations, from late April to June and again in late summer, peaking in late August and early September, but continuing to early October. There is, however a degree of overlap, and a third generation may also occur, and the intermittent arrival of migrants produces a more or less continuous flight season, with abundance varying from year to year.

**Oviposition site:** On the upper or lower surfaces of the foodplant; in groups of about 40 in neat adjacent lines.

**Larval microsites:** On low-growing and tall plants of the herb layer.

**Food and feeding habitats:** The larva feeds on a wide range of Brassicaceae, and especially on cultivated *Brassica* spp., but has also been recorded on 10 species of Leguminosae, 4 species of Resedaceae, and 4 species each in the Tropaeolaceae and Capparidaceae (Feltwell, 1989). Apart from cultivated plants; *Brassica oleracea*, *Reseda lutea* and *Tropaeolum majus* are especially favoured. Feeding occurs in two or three overlapping generations from about May to early October. The larvae are initially gregarious, feeding on the outer leaves of *Brassica* spp., leaving the plant to pupate after a period of wandering; overwintering as a pupa attached to rigid surfaces such as walls, window-frames, fences, tree-trunks, etc.

**Effectiveness of different sampling methods:** Adults in flight are readily separable from similar Pierids by their large size. The ova and larvae are easily found on Brassicaceae, while the pupa is often found on window ledges near gardens.

**Range:** Generally distributed over Ireland, but generally not common in rural areas, fluctuating greatly in abundance due to migration. It is most common in suburban and market garden areas of the east and south. In Britain it is also generally distributed and common, apart from the Highlands and northwest of Scottish, where it is of only local occurrence. Found throughout mainland Europe and the Mediterranean area, absent from only some parts of the far north of Scandinavia, but present only as a migrant in northern Europe.

**Status:** Resident and partial migrant.

**Conservation:** This species is of no conservation concern in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

*Pieris rapae*

**Species name:** *Pieris rapae* (Linnaeus, 1758) (*Papilio* (*Danaus*)). English name: SMALL WHITE.

**Nomenclature:** Pierinae: Pieridae: Lepidoptera: Insecta.

Synonymy: *napaeae* (Esper, 1805); *metra* (Stephens, 1827).

Subspecific status: None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Fallow crops & gardens (ornamental).

**Adult microsites:** Adults fly actively in sunshine, rarely and only very briefly alighting on low vegetation during bouts of flight. They are attracted in particular to white flowers (Dempster & Emmet, 1989), and occur in greatest abundance in fields of *Brassica* crops.

**Flight Period:** The adults fly mainly in two generations, from late April to about mid-June, and from about early July to early September, peaking in mid-August. The second generation is usually noticeably more numerous. Adults can, however, be seen on the wing anytime up to early October. Numbers and flight seasons vary considerably between years, probably partly due to migration.

**Oviposition site:** On a leaf of the foodplant, generally on the underside, laid singly. Plants in sheltered positions are favoured.

**Larval microsites:** On low-growing and tall plants of the herb layer.

**Food and feeding habitats:** The larva feeds on a wide variety of wild and cultivated Brassicaceae, of which Dempster & Emmet (1989) specifically mention *Alliaria petiolata*, *Sinapis arvensis*, *Brassica oleracea*, and *Tropaeolum majus*. After consuming the eggshell, the larva eats out a series of small circular holes in the foodplant; but by about the 3<sup>rd</sup> instar it moves to the heart of Brassicas, causing considerable damage. The larval stage lasts about 20 days, after which pupation occurs, sometimes on the foodplant in the spring generation, but otherwise away from it, on buildings, fences, trees, etc. Overwintering as a pupa.

**Effectiveness of different sampling methods:** Flying adults rarely land in sunny conditions, and may be difficult to separate with confidence from related species. Ova and larvae are easily found on leaves of Brassicaceae.

**Range:** Widely distributed, but rather uncommon in much of the west and northwest; found mainly in suburban and market garden areas. Common in Britain as far north as Central Scotland and the Moray Firth area, but rare or absent further north, and unknown in the Northern Isles. Generally distributed over Europe including the Mediterranean islands, but absent from much of northern Fennoscandia.

**Status:** Resident.

**Conservation:** This species is of no conservation concern in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

*Pieris napi*

**Species name:** *Pieris napi* (Linnaeus, 1758) (*Papilio* (*Danaus*)). English name: GREEN-VEINED WHITE.

**Nomenclature:** Pierinae: Pieridae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: Most Irish and British specimens have been described as subsp. *britannica* Verity, 1911, but the application of subspecies is controversial, and many authors ignore their use.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Eutrophic non-flooded humid grassland; field margins; cutover bog.

**Adult microsites:** Adults fly in sunshine, less actively than *P. rapae*, with which they may easily be confused when in flight. They land intermittently on flowerheads of low herbs including the foodplants in spring; in the summer generation flowers such as those of *Centaurea nigra* and *Rubus fruticosus* agg. are used. In dull weather and at night, adults may be found resting on flowerheads.

**Flight Period:** The adult flies mainly in two generations, from about the end of April to late June and from mid-July to about mid-September, but there is some degree of overlap, and adults can be observed on almost any day within this period.

**Oviposition site:** On the undersides of leaves of low-growing herbs. Eggs are laid upright, singly, on the underside of a lower leaf of the foodplant; often on smaller plants and very close to the ground

**Larval microsites:** On low-growing and tall herb-layer plants.

**Food and feeding habitats:** The larva feeds on a range of Cruciferae; but especially on *Cardamine pratensis* (pers. comm.); also on *Alliaria petiolata*, *Cardamine hirsuta*, *Rorippa nasturtium-aquaticum*, *Sinapis arvensis* and *Tropaeolum majus*; in Britain it has also been recorded on *Cardamine amara*. It also feeds on *Brassica* spp., but is not known as a pest on cultivated Brassicas. Occurring from about early May to early July and again in August and early September; pupation in July and September. Overwintering as a pupa, attached by a silken thread and concealed well down in dense vegetation, usually away from the foodplant.

**Effectiveness of different sampling methods:** Adults can usually be separated from closely related species by underside pattern when they land on flowerheads. Eggs must be searched for by turning over the lowest leaves of their foodplants.

**Range:** Generally distributed and common throughout Ireland; absent from only high ground and exposed coastal sites. It is common and generally distributed throughout Britain, absent from only Shetland. Widespread throughout Europe to the north of Fennoscandia and common in many areas, absent from only Corsica, Crete.

**Status:** Resident.

**Conservation:** As this remains one of the most widespread Irish species, it is of no conservation concern.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

*Anthocharis cardamines*

**Species name:** *Anthocharis cardamines hibernica* (Williams, 1916) [*cardamines cardamines* (Linnaeus, 1758)] (*Papilio* (*Danaus*)). English name: ORANGE-TIP.

**Nomenclature:** Pierinae: Pieridae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: Irish specimens are referable to subsp. *hibernica* Williams, while British specimens are referable to subsp. *britannica* Verity, 1908. Subspecies *hibernica* is reported to differ from subspecies *britannica* in being slightly smaller; with the ground colour of the male being tinged pale yellow, especially on the underside, and the female having a yellowish suffusion of ground colour generally present on the upperside of the hindwing (Bretherton & Emmet, 1989).

**Identification:** The adult is illustrated in Emmet & Heath (1989) (who include various varieties); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated (as *Euchlōe cardamines*) in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Tall-herb forest clearings; eutrophic non-flooded humid grassland; field margins; gardens (ornamental); cutover bog.

**Adult microsites:** Adult males fly actively in sunshine along hedgerows or over damp meadows, but the female is less active and tends to stay close to foodplants. Both sexes rest on flowerheads, where the green mottling of the underside of the hindwing provides cryptic protection.

**Flight Period:** From late April to about the middle of June, rarely to the end of June, peaking in about the 2<sup>nd</sup> week of May. The occasional 2<sup>nd</sup> generation recorded in southern England has not reported in Ireland.

**Oviposition site:** Eggs are placed upright on the base of a calyx or on the stem immediately below, usually singly, but sometimes in small groups.

**Larval microsites:** On low-growing herb-layer plants and tall herbs.

**Food and feeding habitats.** In Ireland the main foodplant is *Cardamine pratensis*, but ova have also been observed on various other crucifers, including *Alliaria petiolata*, *Rorippa nasturtium-aquaticum*, and *Hesperis matronalis*, but there is no confirmation that the larva is capable of feeding on the last mentioned. Other plants listed from Britain by Bretherton & Emmet (1989) are *Sisymbrium officinale*, *Sinapis arvensis*, *Lunaria annua*, *Barbarea biennis*, *Armoracia rusticana*, *Arabis hirsuta* (and cultivated *Arabis* spp.) and *Turritis glabra*. After consuming the eggshell the larva feeds on the opening seedpods of the foodplant, and later also on the buds, flowers and leaves. It remains on or close to the seedpods throughout. Pupation occurs about mid-June, and the pupa, which is

attached to a stem other than that of the foodplant, overwinters, staying in this stage for 10-11 months. According to Bretherton & Emmet (1989), the pupa may overwinter twice.

**Effectiveness of different sampling methods:** Adult males are readily recognisable in flight during their brief flight season. The females fly much less and need to be closely observed for separation from *P. napi*. The orange ovum and the larvae are easily found near the top of flowerheads of their foodplants, especially those of *Anthocharis cardamines* from about mid-May to mid-June.

**Range:** Widely distributed over Ireland and common in many areas. It is absent from many of the larger islands and coastal areas of the west, and is rarely found at elevations of more than about 250m. Generally distributed over England, Wales and the Isle of Man; also widely distributed over southern and western Scotland, with isolated colonies in the north, and even on Orkney. It has expanded its distribution considerably in Britain in recent decades, especially in Scotland. Generally distributed and often common over the mainland of Europe, also found on Corsica, Sardinia and Sicily; extending locally to north of the Arctic Circle in Fennoscandia.

**Status:** Resident.

**Conservation:** This species seems to be of little concern in general, and may even have spread north and west in recent years. In some areas of agricultural intensification it has, however, become quite scarce and localised.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Callophrys rubi*

**Species name:** *Callophrys rubi* (Linnaeus, 1758) (*Papilio* (*Plebejus*)). English name: GREEN HAIRSTREAK.

**Nomenclature:** Lycaeninae: Lycaenidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated (as *Strymon rubi*) in Lewington & Bebington (2002).

**Macrohabitats:** Poor-soil scrub (*Ulex*); cutover bog.

**Adult microsites:** Adults spend much of their time sitting on leaves of trees and bushes with wings closed. Their cryptic coloration makes them very difficult to see when at rest, and the species is probably much under-recorded as a result. Flight is rapid and erratic, the brief green flash being often the only indication of the presence of the butterfly. Males establish territories with a favourite perching site, fending off other approaching males and other flying insects. Females tend to fly over more open countryside, close to the ground, in search of oviposition sites.

**Flight Period:** From about the end of April to late June, but the adult seems to be rarely observed except in May.

**Oviposition site:** Singly on the leaf-shoots or flower-buds of the foodplant; the eggs being placed in a leaf-axil or among buds.

**Larval microsites:** On low and tall shrubs.

**Food and feeding habitats:** Porter & Emmet (1989) & Emmet (1991) list several foodplants, including some that are scarce or unknown in Ireland, but *Ulex* spp. and *Vaccinium myrtillus* seem the most likely in Ireland. Other possible Irish foodplants listed are *Cytisus scoparius*, *Lotus corniculatus* and *Rhamnus catharticus*, but the scarcity of the species in limestone districts makes the last two seem unlikely. The first-instar larva often feeds by boring into buds; later instars feed on tender leaves and shoots, avoiding older tissues, especially on *Ulex* spp. (Porter & Emmet, 1989); they are also cannibalistic. The larval stage occurs in June and July, after which pupation occurs among ground litter, the pupa being sometimes attached to a dead leaf by a silken girdle. It is often found covered by soil particles, apparently because ants attend it, probably because they are attracted to glandular structures on the surface upon which they may feed. Overwintering as a pupa, with eclosion of the adult about the end of April.

**Effectiveness of different sampling methods:** Adults are probably much under-recorded, being difficult to observe during their rapid and brief flight, and almost impossible to find when at rest.

**Range:** Widespread but local, and mainly western. It is fairly common in many areas of bog and scrub in western counties, but much scarcer elsewhere, and largely absent from the agricultural south and east. It is almost certainly overlooked relative to other butterflies, as it is difficult to detect in the field and has a relatively short and early flight period. Widely distributed but local over most of Britain, but absent from much of central and eastern England, and in Scotland rather local apart from the Western Highlands; absent from the Outer Hebrides and Northern Isles. Generally distributed over Europe apart from Crete, becoming scarcer in northern Norway.

**Status:** Local resident.

**Conservation:** Although this species occurs largely in non-agricultural areas, it is vulnerable to loss of scrub.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Thecla betulae*

**Species name:** *Thecla betulae* (Linnaeus, 1758) (*Papilio* (*Plebejus*)). English name: BROWN HAIRSTREAK.

**Nomenclature:** Lycaeninae: Lycaenidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Rich-soil scrub; tall-herb forest clearings.

**Adult microsites:** Populations occur in warm south-facing, sheltered clearings where *Prunus spinosa* occurs with a wide range of height, adjacent to mature woodland. Many Irish sites occur on the margins of turloughs where low stunted *P. spinosa* bushes occur just above the winter shoreline. Males roost on leaves of trees high in the canopy, occasionally descending; large *Fraxinus excelsior* trees are particularly favoured for assembling, and are referred to as “master trees”. The females tend to roost closer to the ground, often on *Rubus fruticosus* agg. flowers or foliage, and are therefore more often observed. In weak light the wings are held open, but in strong sunlight they tend to be closed.

**Flight Period:** From about the end of July to late September, peaking in late August and early September.

**Oviposition site:** On the upperside of a fork in the small branches or twigs of the foodplant, usually placed singly. Most ova are found at a height of 0.2-1m, but others can be found up to 2.5m.

**Larval microsites:** On the foliage of shrubs and small trees.

**Food and feeding habitats:** After eating a small dorsal hole in the eggshell, the larva feeds initially on an opening bud of *Prunus spinosa*, but later on the leaves. It feeds by night, returning to a silken pad spun on the leaf underside by day. In Britain, *P. institia* and possibly *P. domestica* are also recorded as foodplants. Pupation occurs about June, in leaf detritus. Overwintering as an ovum.

**Effectiveness of different sampling methods:** Adults are difficult to observe, as the more active male spends much of the time high in the tree canopy. The most effective way of finding the species is to search for the larvae from autumn onwards through the winter and spring.

**Range:** Very locally distributed in limestone districts of Clare and Galway, with a small outlying population in North Tipperary. Within the limestone habitats it is largely confined to areas of blackthorn scrub with adjacent mature trees such as *Fraxinus excelsior*, particularly where these conditions occur near turloughs. Locally distributed over south and southwest England and southwest Wales, with very isolated populations in the South Midlands and Lincolnshire. Generally distributed over central and eastern Europe, extending locally southwards to northern Spain, central Italy and northern Greece, and locally northwards to the south and east of Fennoscandia to about 61°N and the Baltic States.

**Status:** Very local resident.

**Conservation:** Although many of its Irish sites are currently unthreatened, this species is vulnerable to excessive cutting and flailing of hedgerows and to scrub clearance.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Neozephyrus quercus*

**Species name:** *Neozephyrus quercus* (Linnaeus, 1758) (*Papilio (Plebejus)*). English name: PURPLE HAIRSTREAK.

**Nomenclature:** Lycaeninae: Lycaenidae: Lepidoptera: Insecta.



**Synonymy:** None.

**Subspecific status:** None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated (as *Thecla quercus*) in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Mature and overmature *Quercus*/*Fraxinus* and acidophilous *Quercus* forest; scattered trees (*Quercus*).

**Adult microsites:** Adults spend most of the time high in the canopy of *Quercus* spp, males being usually higher than females. There they feed on honeydew, but not on flowers, but they may occasionally descend to lower levels for feeding. Although they are active mainly in sunshine, they may also fly in dull conditions in warm weather.

**Flight Period:** From early July to mid-September. Adult activity peaks late in the day, about 18.00 hrs, but even then is mainly high in the tree canopy.

**Oviposition site:** Laid singly, or occasionally in pairs, on the tip of a twig, or at the base of a bud on a small branch of *Quercus*. Although all parts of the tree can be selected, sunny, sheltered boughs are the most favoured.

**Larval microsites:** On the foliage of mature trees.

**Food and feeding habits:** The larva feeds on deciduous *Quercus* spp. It hatches in early April. After consuming part of the eggshell it enters an expanding bud and feeds concealed within it. From the second instar it feeds at night, externally, on the leaves. It lives under a web spun over the stem, bracts and leaf-bases; the debris resulting from its feeding collects in the web, making the larva difficult to recognise. Pupation occurs in late June or early July in a very slight network cocoon, on the ground under leaf-litter or moss, or in crevices in the trunks or larger branches oaks (Heath & Emmet, 1989). The pupa has also been recorded in ants' nests. Overwintering as an ovum that sometimes contains a fully developed larva.

**Effectiveness of different sampling methods:** The adult is rarely observed due to its habit of flying in the upper parts of large oak (*Quercus* spp.) and Ash (*Fraxinus excelsior*). It can sometimes be found with optical aid, mainly in the late afternoon or early evening, which is the main flight period. For much of the year ova can be searched for on boughs of *Quercus* spp.

**Range:** Widely distributed but very local and generally scarce. It has been found mainly in mature oak woodland in Kerry, West Cork and Wicklow, but has recently been found elsewhere in suitable habitat in widely scattered localities in the West, North and Southeast, and very locally in the Midlands. Widely distributed but somewhat local over England north to Yorkshire, and Wales; very locally distributed in Northwest England and southwest and central Scotland. Generally distributed over central and southern Europe, but absent from some Mediterranean islands, and much of Bulgaria and Romania; in Fennoscandia it is confined to the south, i.e. extreme southeast of Norway, and to about 61°N in Sweden and Finland.

**Status:** Very local resident.

**Conservation:** This species appears to be under little immediate threat in Ireland, as many of its sites are in protected mature woodland.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Lycaena phlaeas*

**Species name:** *Lycaena phlaeas* (Linnaeus, 1761) (*Papilio (Plebejus)*). English name: SMALL COPPER.

**Nomenclature:** Lycaeninae: Lycaenidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: Irish specimens are referable to subsp. *hibernica* Goodson, 1948; which is described as having a broader coppery subterminal band on the hindwing upperside, and hindwing with a greyer underside ground colour and a more distinct and brighter orange subterminal fascia (Dempster, J. P. & Emmet, A. M. 1989).

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Unimproved dry non-calcareous grassland; coastal grey dunes; fallow crops; cutover bog.

**Adult microsites:** Adults fly over open ground, especially where there are bare patches interspersed with low herbs. It flies only in sunny conditions, with a rapid, jerky flight. The male is more active than the female, which flies low over the vegetation searching for foodplants. Adults also bask on flowers; especially those of Compositae, from which males will fly up rapidly to confront passing butterflies.

**Flight Period:** Late May to mid-June and again from late July to about mid-September. There are a few records from early May, and occasional specimens seen in early October may represent a third brood.

**Oviposition site:** On the underside of a leaf of the foodplant, usually singly. Where population density is high, more than one egg may be found on one leaf.

**Larval microsites:** On low-growing herb-layer plants; overwintering on stems or leaves of herb-layer plants.

**Food and feeding habitats:** The larva feeds on *Rumex acetosa* and *R. acetosella*; possibly also on certain other *Rumex* spp., on which it has been observed to feed in captivity. After hatching, the larva forms a groove on the underside of a leaf of the foodplant and feeds in this. Although the upper epidermis is untouched, the feeding patch can be seen from above as a clear transparent gallery (Dempster & Emmet, 1989). The larva overwinters on a pad of silk spun on a stem or leaf of the foodplant, feeding during mild spells. Feeding in June, and again from late August or September (late October when a 3<sup>rd</sup> generation occurs) resuming normal feeding in March, pupating about the end of March in low vegetation or on a dead leaf.

**Effectiveness of different sampling methods:** The rapidly flying adults are often difficult to detect and identify, but usually return to the same spot after a short time.

**Range:** Generally distributed over Ireland, but occurring at low density, and largely absent from areas of intensive agriculture. Generally distributed over England Wales and the Isle of Man, apart from the Northern Pennines; also generally distributed over southern and eastern Scotland, but becoming scarce further north and west and unknown in Shetland and the Outer Hebrides. Generally distributed over mainland Europe and the Mediterranean islands, extending to North Cape, but locally absent in northern Sweden and Finland.

**Status:** Resident.

**Conservation:** This species seems to be under no major threat in Ireland, but agricultural intensification has probably been responsible for a general decline in recent years in many inland areas.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Cupido minimus*

**Species name:** *Cupido minimus* (Fuessly, 1775) (*Papilio*). English name: SMALL BLUE.

**Nomenclature:** Lycaeninae: Lycaenidae: Lepidoptera: Insecta.

Synonymy: *alsus* (Denis & Schiffermüller, 1775).

Subspecific status: None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Unimproved dry calcareous grassland; coastal grey dunes & machair; limestone pavement; calcareous moraine & scree.

**Adult microsites:** Adults fly in sunshine, but are sedentary for much of the time, the males basking with wings half-opened. Both sexes depend heavily of *Lotus corniculatus* and *Anthyllis vulneraria* as nectar sources. Males, which are not territorial, spend much time perched on small shrubs or stems of long grasses, but the females tend to stay closer to the ground in the vicinity of the foodplant. In dull weather and overnight adults perch on grass stems or other vegetation about 1m above ground.

**Flight Period:** Late May and the first half of June. Adults seen in Kerry in mid-July 2004 may have represented a partial second brood; feeding larvae were also present on that occasion.

**Oviposition site:** On the calyx of a flower of the foodplant, usually tucked in and hidden among the adjoining calyces. Immature inflorescences are usually selected.

**Larval microsites:** On the fruiting bodies of low-growing plants and small-forb hummocks of the herb layer; overwintering in small-herb and moss hummocks, or in soil slightly below ground.

**Food and feeding habitats:** The larva feeds exclusively on *Anthyllis vulneraria*. It hatches about late June and feeds first by boring through the calyx and corolla to feed concealed on the ovary and developing seeds. As it grows, it feeds with the posterior segments exposed. The young larvae can move to other flowers within the same inflorescence, and are cannibalistic when they meet. They are attractive to ants, but are not attended by them. They leave the foodplant about the end of July to enter diapause under it. Overwintering occurs in larval diapause, with pupation from late April onwards, the pupa usually being attached to a silk pad in moss, grass, or under a leaf. It is, however, believed that the pupa is sometimes buried in protective earth cells by ants attracted to it. The emerging adult appears not to be negatively affected by this.

**Effectiveness of different sampling methods:** Adults are inconspicuous, flying erratically close to the ground in warm sheltered sunlit localities. They can sometimes be found roosting on grass stems nearby in the evening. The larvae must be searched for closely about July in flowerheads.

**Range:** Very local and largely confined to coastal sites where its foodplant occurs in abundance. Its main areas of occurrence are the Burren, Co Clare, and coastal sites in Donegal and Sligo. It has also been found in a few quarries in the East and Midlands, where it may have been introduced by human activity, but is otherwise almost entirely absent from the South and Midlands. In Britain it is fairly common over much of central-southern England and the coasts of East Kent and South Wales; but occurs in only very locally in central and Northwest England, and locally, mainly on the coast, in eastern and northeast Scotland to Sutherland. Widely distributed over Central Europe, also Italy and the Balkans, but only local in Iberia; absent from much of the Benelux countries, northern Germany and northern Poland, and local in the Baltic States. In Fennoscandia it extends to about 71°N in Norway, but is largely confined to coastal areas in Sweden, and to the south in Finland.

**Status:** Very local resident.

**Conservation:** This species is vulnerable to loss of coastal habitat due to building developments, golf course construction, etc. During recent years the last colony in Co. Fermanagh has become extinct, and it is considered to have decreased overall in Ireland. In Britain it has declined or disappeared in many areas and is now a Candidate Priority Species (Fox *et al.*, 2006).

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Polyommatus icarus*

**Species name:** *Polyommatus icarus* (Rottemburg, 1775) (*Papilio*). English name: COMMON BLUE.

**Nomenclature:** Lycaeninae: Lycaenidae: Lepidoptera: Insecta.

**Synonymy:** *alexis* sensu Hübner, 1800; *amandus* sensu Haworth, 1812; *tithonus* sensu Haworth, 1812; *dorylas* sensu Leach, 1815; *labienus* (Sheppard in Jermyn, 1824); *thestylys* Kirby in Jermyn, 1827; *lacon* Kirby in Jermyn, 1827; *eros* sensu Stephens, 1828; *icarius* sensu Stephens, 1828; *tutti* (Oberthür, 1910).

**Subspecific status:** Irish specimens are referable to subsp. *mariscolore* (Kane, 1893), in which the forewing of the female is suffused with blue, in contrast to the dark-brown of the nominate form.

Such specimens do, however, occur in Britain, leading Higgins & Riley (1980) to reject the subspecific status.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Unimproved dry calcareous grassland; coastal grey dunes, machair & dune slack; vegetated sea-cliffs; limestone pavement; calcareous moraine & scree.

**Adult microsites:** Adults fly actively in sunshine, generally fairly close to the ground, unlike *Celastrina argiolus*; visiting a wide range of flowers of low herbs. In dull weather they roost on grass stems. At night they roost communally in similar situations, head downwards.

**Flight Period:** Late May to early July and again from late July to mid-September, with slight overlap of generations in mid-July. In some northern areas the species has a single flight period from June to August.

**Oviposition site:** On the foliage of the foodplant, usually on the upper surface and towards the base, but sometimes on the leaf axils. Dense young foliage of young plants is particularly favoured. The female sometimes also lays a number of eggs of species other than the foodplants.

**Larval microsites:** On low-growing herb-layer plants and small-forb hummocks; overwintering on leaves and stems of the foodplants, or on the ground in herb-layer litter.

**Food and feeding habitats:** *Lotus corniculatus* is the main foodplant of the larva, although several others have been recorded from Britain, *viz.* *Lotus uliginosus*, *Medicago lupulina*, *Ononis* spp., and *Trifolium* spp. (Emmet, 1989). The young larva moves to the underside of a leaf and chews a small circular hole in the lower epidermis; it then excavates an area of the parenchyma, leaving the rest of the epidermis intact. Later feeding is by day on all parts of the foodplant. The larva feeds from June onwards, with some larvae pupating in July while others continue feeding and enter hibernation from September or October, in both cases feeding again in late March and April. The overwintering larva remains low down on a stem of the foodplant, on adjacent herbage or on leaf-litter until pupation in May. It is reported that the last-instar larva is milked by ants (Heath *et al.*, 1984).

**Effectiveness of different sampling methods:** Males in particular are readily recognisable as they are the only distinctively blue species flying on open ground in Ireland. Larvae can be found by closely searching leaves of *Lotus corniculatus* in July.

**Range:** Generally distributed over Ireland; most abundant in limestone and coastal areas where its foodplant is well established. It is otherwise much less common away from the coast. Generally distributed and common over England, Wales and the Isle of Man, apart from a few montane areas in the north and west; widespread over Scotland including the Outer Hebrides and Orkney, but absent from some montane areas and Shetland. Generally distributed over mainland Europe and the Mediterranean islands, absent from only northeast Finland.

**Status:** Resident.

**Conservation:** Although there has probably been a general decline in agricultural areas, this species is under no general threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

*Celastrina argiolus*

**Species name:** *Celastrina argiolus* (Linnaeus, 1758) (*Papilio* (*Plebejus*)). English name: HOLLY BLUE.

**Nomenclature:** Lycaeninae: Lycaenidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: British and Irish specimens are referable to subsp. *britannica* (Verity, 1919).

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated (as *Lycaenopsis argiolus*) in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Acidophilous *Quercus* forest; field margins, hedges, urban parks & gardens (ornamental);

**Adult microsites:** Both sexes bask in sunshine on leaves of trees and bushes, with the wings half-open. They also fly in sunshine around the tops of trees and bushes, the males occasionally descending to ground level to feed on damp surfaces. Adults spend much time perched on shiny leaves of species such as *Ilex aquifolium* and *Laurus nobilis*, where the shiny-blue of the wing underside makes them difficult to detect.

**Flight Period:** Late April to about mid May, and again in late July and early August, numbers being larger in the first brood. The second brood is still unknown in northern parts, although it has been spreading northwards in recent years. Since 2001 third-brood adults have occasionally been observed in Cork City and Dublin City in late October and early November.

**Oviposition site:** At the base of an unopened flower bud of the foodplant.

**Larval microsites:** On the foliage or sometimes the fruiting bodies of shrubs or small trees or on the foliage of lianas; overwintering on the leaves of shrubs or small trees, or on the ground in forest litter.

**Food and feeding habitats:** Larvae of the first (Spring) generation feed on *Ilex aquifolium*, while Summer-brood larvae feed on *Hedera helix*. Other foodplants that may be occasionally used include *Euonymus*, *Ulex*, *Cornus*, *Pyracantha* and *Rubus* spp. The larva feeds initially on the unopened buds of its foodplant, on *Ilex* female plants later on the drupes, but on young and tender leaves on male plants, which are generally preferred. Feeding occurs in late May and June, and again from mid-August to September. Ants have been recorded attending the larvae (Wilmott, 1989). Pupation occurs July and again in October, in tangled roots and leaf-debris in Ivy, but first-brood larvae may pupate on the undersides of holly leaves. Overwintering as a pupa.

**Effectiveness of different sampling methods:** Adults be readily recognised as the only blue butterfly found around tops of bushes in Ireland. The larvae can sometimes be found on leaves of *Ilex aquifolium* in June.

**Range:** Locally distributed in areas of mature woodland and in urban areas where *Ilex aquifolium* occurs in sufficient abundance. Its main areas of abundance are in parts of the East, South and Southwest, while it is largely absent from much of the Midlands and West and North. Generally distributed and common over the South of England, becoming more local northwards, extending to very isolated colonies in the south and east of Scotland; local in the Isle of Man. Generally distributed over central and southern Europe, including the Mediterranean islands; extending to the Baltic States and southern Fennoscandia; and locally further north to northern Sweden and Finland.

**Status:** Local resident.

**Conservation:** The Irish population of this species seems to be stable or even increasing, possibly due to climatic warming. It has also been found in some new areas in recent years. Colonies can, however, be lost by scrub clearance, or by increased shading of foodplants upon which the adult roost or bask.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Vanessa atalanta*

**Species name:** *Vanessa atalanta* (Linnaeus, 1758) (*Papilio (Nymphalis)*). English name: RED ADMIRAL.

**Nomenclature:** Nymphalinae: Nymphalidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Tall-herb & grassy forest clearings; field margins, urban parks & gardens (ornamental).

**Adult microsites:** Adults fly rapidly in sunshine and bask on a wide range of flowers, especially purple ones; they also bask on warm surfaces such as sunlit walls. They roost on tree trunks and may also hibernate in this situation or in rabbit holes or sheds.

**Flight Period:** Although adults can be seen any time of year except perhaps December and the first half of January, they are usually most common in August and September, but substantial numbers of migrants are sometimes seen in the period April to June. In good migration years they may be common throughout August and September, continuing right through October, and even well into November.

**Oviposition site:** On the upperside of leaves of the plant, laid upright.

**Larval microsites:** On low-growing and tall herb-layer plants.

**Food and feeding habitats:** The foodplant used almost exclusively is *Urtica dioica*, although *U. urens* and *Parietaria judaica* may occasionally be consumed. The larva feeds non-gregariously on

the leaves of its foodplant. It produces a tent-like structure by spinning together the outside of a leaf, and emerges from this to feed. Late autumn larvae are likely to be killed by frost. The larva may be found anytime from late June to autumn. Pupation occurs in late summer among spun leaves, with the pupa suspended on a silken pad. Overwintering, which probably occurs only exceptionally, is in the adult stage.

**Effectiveness of different sampling methods:** The conspicuous adults are easily recognised on nectar sources and in rapid swooping flight. There appear to be relatively few observations of the immature stages.

**Range:** Widespread and often common in years of strong migration. At these times it is most common in southern counties, especially near the south coast. In Britain it is also common in good migration years, especially in the south, but extending to Shetland and the Outer Hebrides. It has increased in recent years and there are indications that it sometimes overwinters successfully in southern England. Occurring as a migrant over all of mainland Europe and the Mediterranean islands; absent from only the far north of Norway and northeast Finland.

**Status:** Migrant, probably occasionally surviving overwintering, and breeding regularly in the summer.

**Conservation:** This species is of no conservation concern in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Cynthia cardui*

**Species name:** *Cynthia cardui* (Linnaeus, 1758) (*Papilio* (*Nymphalis*)). English name: PAINTED LADY.

**Nomenclature:** Nymphalinae: Nymphalidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated (as *Vanessa cardui*) in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Unimproved dry grassland; lightly-grazed improved grassland; fallow crops & field margins.

**Adult microsites:** As there is no record of the adult's overwintering in Ireland, its hibernation microsites are unknown. In sunny conditions the adult flies actively, and nectars on various flowers, especially purple ones.

**Flight Period:** Migrant adults can appear early in spring, but more often from mid-April to about mid-June. The main flight season is, however, in late summer, peaking in mid-August to mid-September, but numbers fluctuate greatly from year to year, and few if any specimens are recorded in poor migration years.



**Oviposition site:** On the upper surfaces of the leaves of the foodplant; placed singly, but often with several on one plant.

**Larval microsites:** On low-growing and tall herb-layer plants.

**Food and feeding habitats:** The main foodplants are *Cirsium vulgare* and *C. palustre*, but *C. arvense*, *Urtica dioica* and *Echium vulgare* may also be used. The larvae feed from a silk pad on the underside of a foodplant leaf, and show an unwillingness to move elsewhere even when food becomes scarce. They occur from about June to September, and are unable to withstand prolonged cloud or damp, even in summer. Where pupation is possible, the pupa is usually lightly attached to leaves. The species is considered incapable of overwintering in any stage in Ireland.

**Effectiveness of different sampling methods:** The distinctive adults are readily recognised on flowerheads. The immature stages are rarely recorded.

**Range:** Occurs in good numbers in years of strong migration, but much more common on the coasts of the east, west and especially the south. Although, like the Red Admiral, it reaches as far as the north coast, it is generally less common than that species in northern areas. This species can be found in Britain as far north as Shetland, and is common in good migration years, especially in the south. Occurring as a migrant throughout Europe, including Iceland; unrecorded from only the far north of mainland Norway.

**Status:** Migrant, but capable of breeding in the summer.

**Conservation:** This species is of no conservation concern in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Aglais urticae*

**Species name:** *Aglais urticae* (Linnaeus, 1758) (*Papilio (Nymphalis)*). English name: SMALL TORTOISESHELL.

**Nomenclature:** Nymphalinae: Nymphalidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Tall herb & grassy forest clearings; fallow crops, field margins, urban parks & gardens (ornamental).

**Adult microsites:** Adults select sheds, attics or other similar sites for roosting prior to hibernation, and then choose these sites for hibernation. In spring, adults frequently roost low within nettle patches. Both sexes bask and feed on flowers, especially purple ones, before hibernation, and on such flowers as heathers (*Calluna vulgaris*, *Erica* spp.) and *Taraxacum officinale*, as well as on *Salix* spp. catkins in spring.

**Flight Period:** Hibernating adults appear on the wing as early as February in favourable weather, and continue until about mid-May, peaking in April. Summer adults appear about the end of June, and increase until late August and early September, when increasing numbers enter hibernation, with late specimens flying well into October.

**Oviposition site:** On the underside of the near-terminal leaves of the foodplant, in clusters of about 80, with some eggs piled up on top of others. Small plants on the southeastern edge of nettle patches are most favoured.

**Larval microsites:** On low-growing and tall herb-layer plants.

**Food and feeding habitats:** The foodplant is *Urtica dioica*, possibly also *U. urens* locally. Immediately after hatching the larvae produce a retreat of spun leaves near the top of a foodplant. The young larvae live gregariously within the retreat, but as the plant becomes defoliated groups of larvae move to another plant to continue feeding. The silken structure becomes festooned with faeces, larval skins and plant fragments. Later the larvae become solitary. Feeding occurs both by day and by night. Prior to pupation the larvae disperse several metres to pupate suspended from vegetation about one metre above ground. Larvae occur mainly from May to June and again from July to August, but possibly in three generations in warm summers. Overwintering as an adult.

**Effectiveness of different sampling methods:** Adults are readily recognisably on nectar sources among other Nymphalids. Hibernating adults are also regularly found indoors. The webs and larvae are easily found on *Urtica dioica*.

**Range:** Generally distributed and common throughout Ireland. This species shows a stronger affinity with urban and suburban habitats than does *Inachis io*. Common and generally distributed in England, Wales, the east and south of Scotland and the Isle of Man; more local in the Scottish Highlands and Islands, but extending to Shetland. Generally distributed and often common over all of mainland Europe; also occurring in Corsica, Sardinia and Sicily.

**Status:** Resident

**Conservation:** This species appears to be under no threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Inachis io*

**Species name:** *Inachis io* (Linnaeus, 1758) (*Papilio* (*Nymphalis*)). English name: PEACOCK.

**Nomenclature:** Nymphalinae: Nymphalidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated (as *Nymphalis io*) in Lewington & Bebington (2002).

**Macrohabitats:** Tall herb & grassy forest clearings; fallow crops, field margins, urban parks & gardens (ornamental).

**Adult microsites:** Adults roost in holes in trees in autumn, and also during hibernation, when they may use other types of enclosed areas such as buildings. After emerging in spring they roost on sunlit dry ground, in thick, broad-leaved vegetation such as ivy. In autumn adults bask and feed on various flowers, but especially on purple ones such as *Buddleja davidii* and *Succisa pratensis*.

**Flight Period:** Hibernating adults can fly as early as mid-March or even earlier, but are most frequent in late April and early May, continuing to early June. Summer adults appear from late July and become most numerous in mid-August to early September, gradually diminishing through late September, and occasionally flying as late as early November.

**Oviposition site:** On the underside of leaves of the foodplant, laid in clusters of 300-400 eggs, some piled untidily on top of each another.

**Larval microsites:** On low-growing and tall herb-layer plants.

**Food and feeding habitats:** The larval foodplant is *Urtica dioica*; but *Humulus lupulus* is also occasionally reported in Britain. The larvae hatch about the end of May and feed until pupation about the beginning of August. On hatching they spin together a few higher leaves of the foodplant and feed within these. As the leaves become fully consumed the larval group moves to an adjacent plant and forms a new web there. The webs fill up with faecal pellets and discarded skins. Later the larvae become solitary and feed exposed, still feeding both diurnally and nocturnally. Prior to pupation they leave the feeding site and wander several metres to pupate suspended from a silken pad about 1 metre above ground in vegetation. Overwintering as a hibernating adult.

**Effectiveness of different sampling methods:** Adults are readily observed in sunshine after hibernation and again in late summer and early autumn, especially where flowers such as *Succisa pratensis* and *Centaurea nigra* provide nectar sources. The fully-grown black larvae are prominent on the leaves of the foodplant, as are the untidy frass-filled webs.

**Range:** Generally distributed and common over Ireland. It is also common in a wide range of rural habitats including raised and blanket bogs, where such plants as *Succisa pratensis* are important nectar sources. There is evidence that this species was previously much scarcer and possibly only migratory in the north (Ni Lamhna, 1980), and that it has more recently become resident and more abundant, as it has at similar latitudes in the Isle of Man and Scotland. In Britain it is generally distributed and common in England, Wales and southern Scotland, and has recently spread northwards in Scotland to become established in Fife and Central Scotland, as well as locally in the Northeast, with sporadic occurrences in the far north and the Northern Isles. Generally distributed and common over central and western Europe, extending south to the northern half of Iberia, all of Italy and to northern Greece; occurring also in southern Norway, to about 65°N in Sweden, and to the southern half of Finland.

**Status:** Resident.

**Conservation:** This species is not considered under threat in Ireland, and appears to have become more widespread and common in recent decades.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

***Polygonia c-album***

**Species name:** *Polygonia c-album* (Linnaeus, 1758) (*Papilio* (*Nymphalis*)). English name: THE COMMA.

**Nomenclature:** Nymphalinae: Nymphalidae: Lepidoptera: Insecta.

**Synonymy:** None.

**Subspecific status:** None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Tall-herb and grassy forest clearings; crops, field margins, orchards, urban parks and ornamental gardens.

**Adult microsites:** During late summer and early autumn the adults range widely over sites with nectar sources, but move to woodland to hibernate, and subsequently mate and oviposit in spring, when males also establish territories on sunny rides and woodland margins.

**Flight Period:** There are two types of flight pattern. Some ova laid by overwintered females produce an early summer generation of adults (f. *hutchinsoni*) in late June and July. The more slowly developing larvae produce a single generation, with adults appearing in Late July and August. Adults of both forms hibernate in late August or September and fly again in March and April.

**Oviposition site:** On low or tall herbs; eggs are laid singly, usually near the margin of the upperside of a leaf of the foodplant.

**Larval microsites:** On tall or low-growing herb-layer plants.

**Food and feeding habitats:** The main foodplant is *Urtica dioica*, but the larva is also known to feed on *Humulus lupulus*, *Ribes* spp., *Ulmus* spp. and *Salix* spp. Up to the 19<sup>th</sup> century the main foodplant in Britain was *Humulus lupulus*, and by the end of that century the species had retreated almost exclusively to the few areas in southern England where *H. lupulus* was farmed in quantity. It appears to have changed its feeding preferences to favour *U. dioica* about the beginning of the 20<sup>th</sup> century. The larva feeds in May and early June, and again in late July and early August, at first on the lower surface of a leaf, but later switches to the upper surface. It pupates in ay, and again in July, suspended from a dense silk pad on the foodplant, but more often in surrounding dense vegetation. Overwintering as a hibernating adult on tree-trunks and branches, where the ragged wing outline provides good concealment.

**Effectiveness of different sampling methods:** Adults are easily located in flight in sunny conditions, but the cryptic underside markings and outline make detection at rest difficult. The distinctive caterpillar can be seen in later instars on the uppersides of leaves, in various curved postures, resting on a spun silken layer.

**Range:** There are six generally accepted Irish records of this species since 1995, one from Donegal, and the others from the east and southeast. In at least two cases, an adult was observed in one locality over several days, but there has been no proof of breeding. . In Britain this species has spread in recent years from an area around the English-Welsh border to which it had contracted early in the 20<sup>th</sup> century. It is now common and generally distributed over England and Wales, apart from a few areas in north and west Wales, and parts of Cumbria and the northern Pennines, and has also spread into southeast Scotland, as far as the Edinburgh area, with scattered recent records as far as Galloway, the central Highlands and Aberdeenshire. Generally distributed over central and southern Europe, extending to about 62°N in Norway and to the northern shore of the Gulf of Bothnia.

**Status:** Rare migrant.

**Conservation:** Conservation is not an issue in the Irish context.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Boloria euphrosyne*

**Species name:** *Boloria euphrosyne* (Linnaeus, 1758) (*Papilio* (*Nymphalis*)). English name: PEARL-BORDERED FRITILLARY.

**Nomenclature:** Heliconiinae: Nymphalidae: Lepidoptera: Insecta.

Synonymy: *varianana* (Verity, 1932)

Subspecific status: None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated (as *Argynnis euphrosyne*) in Lewington & Bebington (2002).

**Macrohabitats:** Grassy forest clearings; unimproved dry calcareous grassland; limestone pavement.

**Adult microsites:** Adults fly briskly through open hazel scrub and sunlit woodland margins and rides. Both sexes feed on the nectar of various flowers such as *Lotus corniculatus*, *Ajuga reptans*, *Ranunculus* spp. and *Hyacinthoides non-scriptus*.

**Flight Period:** Early to mid-May to about the middle of June.

**Oviposition site:** On either the undersurface, or less often, the uppersurface of the leaves of the foodplant; or on leaf debris in the immediate vicinity of the foodplant; usually laid singly, sometimes in pairs.

**Larval microsites:** On low-growing plants of the herb-layer; overwintering above ground in herb-layer stems and foliage, or on the ground in herb-layer and forest litter.

**Food and feeding habitats:** The main foodplants are believed to be *Viola riviniana* and *V. palustris*; but the latter is poorly represented in the Irish distribution of this species. After hatching in July or August the larvae feed until about early October, then enter diapause, feeding again from about

late March to late April. The larvae spend much of the time in dry curled leaves on the ground, emerging to feed on the young tender leaves of the foodplant or to bask; frequently leaving only bare stalks as evidence of feeding. Overwintering in larval diapause and pupating in late April, suspended from a silken pad in a loose structure spun up in vegetation.

**Effectiveness of different sampling methods:** Adults can be found flying rapidly among scrub on limestone in sunshine.

**Range:** Confined to the limestone district of the Burren in Co Clare, and a small adjacent area of Co Galway. Even within this area it is local and generally uncommon. Local and seriously in decline in England and Wales, found mainly in isolated colonies in southern and southwest England. Widely distributed in the Scottish Highlands, especially in the west, extending locally to Sutherland; also occurring locally in Dumfries and Galloway. Widely distributed but local over much of Europe, but absent from most of Iberia and the Mediterranean islands; also absent from much of northwest Europe, and extinct in the Netherlands; local in Poland and the Baltic States, but generally distributed in Fennoscandia to North Cape.

**Status:** Very local resident.

**Conservation:** Data are scarce on which to assess the trends in this species in Ireland, but it is probably stable. In Britain this species has continued to decline, especially in England and Wales, and now has Priority Species status (Fox *et al.*, 2006).

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Argynnis aglaja*

SPECIES NAME: *Argynnis aglaja* (Linnaeus, 1758) (*Papilio* (*Nymphalis*)). English name: DARK GREEN FRITILLARY.

**Nomenclature:** Heliconiinae: Nymphalidae: Lepidoptera: Insecta.

Synonymy: *charlotta* (Haworth, 1803); *caroletta* (Jermyn, 1827); *emilocuples* (Verity, 1919).

Subspecific status: None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Unimproved dry calcareous grassland; coastal grey dunes, machair & dune-slacks; limestone pavement.

**Adult microsites:** The adults fly rapidly in sunshine over open ground, visiting mainly purple flowers as nectar sources. They roost, often communally, in the evening, near abundant nectar sources, sometimes on grass inflorescences.

**Flight Period:** From about mid-June to the beginning of August.

**Oviposition site:** Eggs are laid singly on live plants or on debris close to the foodplants.

**Larval microsites:** On low-growing plants of the herb-layer; overwintering in herb-layer and forest litter.

**Food and feeding habitats:** The larval foodplants are *Viola* spp.; the species most often used in Britain being *V. hirta*, *V. riviniana* and *V. palustris*; but the distribution of the butterfly in Ireland best matches the distribution of *V. tricolor*; while the combination of habitat and known distribution makes the others unlikely as foodplants. The larva on hatching in August eats the chorion of the egg, but does not feed further and immediately enters diapause in leaf-litter. The larva commences feeding in the first warm days of spring, eating the leaves and often leaving just the stems. Pupation occurs in May, low down in vegetation, in a spun silken construction incorporating surrounding vegetation; within this the larva is suspended prior to pupation.

**Effectiveness of different sampling methods:** This rapidly flying species is very difficult to approach for close observation.

**Range:** Occurs very locally in isolated colonies, almost entirely on the coast or in the Burren limestone of Co Clare. There are a few small inland populations in South Armagh and West Waterford; otherwise its occurrences inland is rare and sporadic. Earlier distribution maps (e.g. Wilmott & Emmet, 1989, Ni Lamhna, 1980) indicate a much more widespread occurrence of this species in the south of Ireland, but this is thought to be due to misidentifications (author's opinion). Widely distributed over the south and southwest of England, also Wales and Cumbria; only local elsewhere in England, and declining in eastern and central England; widely distributed over Scotland, extending the southern Outer Hebrides and Orkney, locally common on the Isle of Man. Widely distributed over most of Europe, but absent from most of the Mediterranean islands, and parts of western and northern France and Germany as well as most of the Benelux countries and Lithuania. Generally distributed over Fennoscandia apart from the extreme north of Mainland Norway; also present in Latvia and Estonia.

**Status:** Very local resident.

**Conservation:** Although older data are perhaps questionable, this species seems to have declined substantially, especially in inland areas. It is vulnerable to loss of unimproved herb-rich grassland, and now seems to be almost confined to coastal sites and the Burren.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Argynnis paphia*

**Species name:** *Argynnis paphia* (Linnaeus, 1758) (*Papilio* (*Nymphalis*)). English name: SILVER-WASHED FRITILLARY.

**Nomenclature:** Heliconiinae: Nymphalidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Tall-herb & grassy forest clearings; urban parks.

**Adult microsites:** The adults, which are powerful fliers, fly in sunny conditions or dappled sunlight in herb-rich woodland clearings and margins of woodland, frequently perching and feeding on flowers of tall herbs such as *Centaurea nigra* and *Cirsium palustre*. They also feed on honey-dew on leaves of *Rubus fruticosus* agg. Both sexes roost at the tops of trees at other times.

**Flight Period:** Early July to mid-September. This appears to be earlier than in Britain for which Shreeve & Emmet (1989) indicate "early July to mid-late August". The adult is common, at least in the southwest, in early September.

**Oviposition site:** Between the crevices of bark on trees at a height of 1.0-1.5m. Sites are chosen that are not more than 2m from the foodplant. In one area (Cornwall) moss and twigs in hedgerows were selected as oviposition sites.

**Larval microsites:** On foliage of low-growing herbs; overwintering on trunks of trees.

**Food and feeding habitats** The larva feeds on *Viola* spp., but especially *V. riviniana*. After hatching in August, the larva eats part of the eggshell, but then moves to crevices in the tree-trunk to hibernate. In late March or April it becomes active and moves to a feeding site. The young larva feeds intermittently by day, feeding on young leaves and shoots; it also basks at times on nearby leaf-litter and soil. The older larva is more mobile and may travel some distance between feeding bouts. Pupation occurs about late May. The pupa is suspended from a silken pad, but the site of pupation is uncertain, but is thought to be on twigs and vegetation near the feeding site (Shreeve & Emmet, 1989).

**Effectiveness of different sampling methods:** The striking adults are distinctive on flowerheads or swooping gracefully in woodland clearings.

**Range:** Widely distributed but local, largely confined to areas of mature woodland. It is common in parts of counties Kerry and Wicklow, while there are rather few records from much of the Midlands and West. Widespread and often common over southern and southwest England and the West Midlands as well as Wales apart from the north; occurring only very locally further north to North Yorkshire and South Cumbria; absent from East Anglia, Scotland and the Isle of Man. Widely distributed in central and southern Europe, but absent from much of southern Iberia and the Balearics; also largely absent from northwestern parts of the Netherlands and Germany and much of Denmark; occurring in southern Fennoscandia to about 61°N.

**Status:** Local resident.

**Conservation:** This species seems to be stable in Ireland. It is, however, vulnerable to canopy closure in maturing woods and plantations.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Euphydryas aurinia*

**Species name:** *Euphydryas aurinia* (Rottemburg, 1775) (*Papilio*). English name: MARSH FRITILLARY.

**Nomenclature:** Nymphalinae: Nymphalidae: Lepidoptera: Insecta.



**Synonymy:** *artemis* (Denis & Schiffermüller, 1775); *scotica* (Robson, 1880); *signifera* (Kane, 1893); *anglicana* (Fruhstorfer, 1917); *acedia* (Fruhstorfer, 1917); *scotica* (Gaede, 1930)

**Subspecific status:** Irish specimens have been named *hibernica* (Birchall, 1873); but as variation is considerable within and between populations the validity of this designation is questionable, and variation within a population has been shown to be partly dependent on population size (Ford & Ford, 1930).

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Oligotrophic humid grassland; coastal grey dunes & machair; cutover bog.

**Adult microsites:** Roosting adults may sometimes be found on flowerheads. They bask and feed on various flowers, but especially on *Cirsium dissectum*, and to a lesser extent *Potentilla erecta*.

**Flight Period:** From about May 20<sup>th</sup> to the end of June; occasionally also in early July.

**Oviposition site:** On low or tall herbs, laid on the underside of the leaves of the foodplant in neat batches of about 50-400 eggs, which may be laid in up to four layers. Plants are selected which receive adequate sunlight and are situated in a suitable mosaic of sward heights, with a preference for plants with luxuriant growth in most localities.

**Larval microsites:** On tall and low herbs, on the foliage; overwintering just above the ground the herb-layer stems, or on the ground, in tussocks of grasses, sedges and rushes, or of small forbs.

**Food and feeding habitats:** The usual foodplant is *Succisa pratensis*, although larvae have been reported feeding on *Lonicera periclymenum* in time of population explosions (Ford & Ford, 1930), and several other plants have been used successfully in captivity. After hatching the larvae spin together two leaves of the foodplant and live gregariously within the spinning, grazing the leaves and producing brown blotches on the upperside. Second and third-instar larvae produce more extensive webbing on the foodplant, or partly on other adjacent vegetation, such as *Molinia caerulea* or *Calluna vulgaris*, but also spend some time basking. If a plant becomes defoliated, the larvae move to an adjacent plant, often about one metre from the original. In late August or September they reach fourth instar and soon after this build smaller hibernating webs in vegetation, frequently grass-stems at about 10cm above ground or less, but solitary larvae or small groups may still be seen basking in suitable conditions until at least early November. Following hibernation, the larvae emerge to bask or feed in suitable, i.e. sunny, conditions, even as early as late January (pers. obs.), but usually about mid-March. From then until pupation about late April the larvae become increasingly solitary, although they initially construct small silken webs containing typically about 20 larvae. In cloudy conditions the larvae become inactive, as they depend on adequate insolation to raise their body temperature to suitable levels for activity.

**Effectiveness of different sampling methods:** Adults may be found in flight in sunny conditions, but only from about 09.00 to 17.00 hrs. The females generally make only short low flights around the foodplants, but both sexes are attracted to flowers of *Cirsium dissectum*, *Potentilla erecta*, *Ranunculus* spp., etc. in sunny conditions. The larval can be easily found in suitable habitat from about the end of July to October, but only with difficulty from about mid-October. The distinctly

black larvae are prominent when basking on withered vegetation in spring, although the larval webs are less prominent than in autumn.

**Range:** Very local but widely distributed over much of the west and northwest; scarcer in the east and south and now apparently extinct in most of this area. Its main areas of distribution are in the east of Co Galway and certain mainly coastal sites in Cos Donegal and Sligo, but there are also good populations in parts of Clare, Down and Roscommon. Very isolated populations also exist in Cos Cork and Kerry. Although once widely scattered over much of England and Scotland, this species has declined sharply to become almost totally confined to parts of southern and southwestern England and parts of south and west Wales. In Scotland it is stable in parts of Argyll and the southern Inner Hebrides, having disappeared from various sites in the east and south. Widely distributed but local over much of central and western Europe; occurring locally in central and southern Sweden and in southern Finland; very local in the Balkans; declining seriously in many areas of central and western Europe and extinct in the Netherlands.

**Status:** Resident, declining in some areas.

**Conservation:** The decline of this species has been a major cause of concern, and the species is now classified as “vulnerable” at a European level, and a UK BAP Priority Species. It is fully protected in Great Britain and Northern Ireland is an Annex II species under the Bern Convention and the EC Habitats and Species Directive. Although its decline is not as severe in Ireland as in some other West European countries, its decline in the east, south and much of the midlands of Ireland in the period 1960-2000 give considerable cause for concern. While moderate to large populations survive in parts of the west and northwest, their future viability is not guaranteed. The species is vulnerable to loss of habitat due to afforestation, drainage of wetlands and agricultural intensification. It is, however, also highly sensitive to more subtle changes such as reduction or cessation of grazing leading to increasing sward height or scrub encroachment. Vegetational succession has also caused populations to disappear or contract. As the species is thought to occur in metapopulations, it requires networks of suitable habitat patches to for survival of regional populations (e.g., Fowles & Smith, 2006), and a comprehensive landscape scale management regime is necessary to ensure its survival in many areas. In Britain, where it declined drastically over much of eastern, northern and central England during the 20th Century is classified as a Priority Species (Fox *et al.*, 2006).

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Pararge aegeria*

**Species name:** *Pararge aegeria tircis* (Butler, 1867) (*egerides* Staudinger, 1871) [*aegeria aegeria* (Linnaeus, 1758)] (*Papilio (Nymphalis)*). English name: SPECKLED WOOD.

**Nomenclature:** Satyrinae: Nymphalidae: Lepidoptera: Insecta.

Synonymy: *egeria* (Ochsenheimer, 1807)

Subspecific status: British and Irish specimens are referable to subsp. *tircis*, which is widely distributed in Northern Europe.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Tall-herb & grassy forest clearings; field margins, orchards, urban parks & gardens (ornamental).

**Adult microsites:** Adults bask, roost and fly in areas of dappled sunlight, on edges of woodland or close to hedges on the margins of roads and paths. Both sexes feed at honey-dew and floral nectar, especially that of *Senecio jacobaea* (Shreeve & Emmet, 1989).

**Flight Period:** Adults appear about the middle of April, and fly until early July, peaking in May and early June. They are usually absent around mid-July, appearing towards the end of that month and peaking in late August and early September, then decreasing steadily until early or late October depending on weather conditions.

**Oviposition site:** Eggs are attached to the undersides of leaves of the foodplant, usually singly, occasionally in pairs.

**Larval microsites:** On tussocks of grasses; sometimes hibernating as a larva, on or just above the ground on grass-stems in tussocks.

**Food and feeding habitats:** A wide range of Gramineae are used, most notably *Brachypodium sylvaticum*, *Dactylis glomerata* and *Holcus lanatus*. The hatching larva only sometimes feeds on the eggshell, but always stays close to it on the underside of the leaf, and feeds inwards from the leaf-margin towards the midrib. After second instar, the larvae may wander between leaves. They feed intermittently both diurnally and nocturnally. During winter the larva usually spends larval diapause in the base of the grass stems, but is also capable of being active and feeding at temperatures above 6°C. Although larvae can occur at any time of year, the main larval periods are probably June-early July, August and from October onwards, but as there are usually three generations per year a great deal of overlap occurs. Larvae that have not attained third instar are thought not to be capable of surviving the winter (Shreeve & Emmet, 1989).

**Effectiveness of different sampling methods:** Adults should be search for in partly shaded areas where they fly in dappled sunlight. Even small patches of trees or bushes in an otherwise treeless landscape (*e.g.* West Galway) can support a colony.

**Range:** Generally distributed and common over Ireland; absent from only exposed coastal localities and some of the areas of extensive blanket bog such as northwest Mayo. In Britain it is common and generally distributed in the south and west of England and throughout Wales; it has also spread northwards in recent years to become generally distributed in much of northwest England, the Midlands and East Anglia, and has become more common in Yorkshire. In Scotland it has also expanded its range; the population in the northeast has spread along the shores of the Moray Firth and inland, while in the west it is widely distributed in the western Highlands and Inner Hebrides from Arran to Cape Wrath, with an isolated population in Galloway; absent from the Isle of Man. Generally distributed over southern and central Europe and the Mediterranean islands; extending locally to Denmark, the Baltic States and Fennoscandia to about 62°N, largely coastal in the north. The species is represented by subsp. *aegeria* south and southwest of a

transition zone extending from western France to northeast Italy; elsewhere it is represented as subsp. *tircis*.

**Status:** Resident.

**Conservation:** This species seems to be under no threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Lasiommata megera*

**Species name:** *Lasiommata megera* (Linnaeus, 1767) (*Papilio* (*Nymphalis*)). English name: WALL BROWN.

**Nomenclature:** Satyrinae: Nymphalidae: Lepidoptera: Insecta.

Synonymy: *megaera* misspelling; *maera* sensu auctt.; *caledonia* Verity, 1911.

Subspecific status: None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated (as *Pararge megera*) in Lewington & Bebington (2002).

**Macrohabitats:** Unimproved dry calcareous grassland; coastal grey dunes, machair & vegetated sea-cliffs; limestone pavement; cutover bog.

**Adult microsites:** The adults bask on warm, sunlit surfaces, especially on rocky walls, but also on bare earth. The females tend to congregate closer to nectar sources and potential foodplants.

**Flight Period:** Flying from mid-May to mid-June and again from the end of July to mid-September. Emmet (1991) indicates the first generation emerging in April in Britain, where there may also be a partial third generation in late September and October in warm years.

**Oviposition site:** Usually on the tips of leaves, but sometimes on stems or exposed roots of the foodplant, occasionally on other plants. Sheltered and warm sites are selected.

**Larval microsites:** On grass tussocks; sometimes hibernating as a larva, above the ground on plant stems and tussocks of grasses.

**Food and feeding habitats:** The larvae feed on a range of Gramineae, of which *Dactylis glomerata*, *Deschampsia flexuosa*, *Holcus lanatus*, *Agrostis capillaris* and *A. gigantea* are specifically mentioned by Shreeve & Emmet (1989). Larvae usually eat the eggshell on emergence and stay close to its site during the first two instars. Most feeding occurs at night, but fourth-instar larvae also feed by day. Older larvae also wander short distances between plants. Summer larvae occur in late June and July, the later generation from late September onwards; but it is thought that in warm seasons some larvae pupate before winter. Overwintering larvae feed again for a short time in spring. The larvae pupate attached to a silken pad, usually under the foodplant and usually under overhanging leaves. Overwintering as a pupa, or possibly sometimes in larval diapause in grass tussocks.

**Effectiveness of different sampling methods:** Adults are found almost always on or near walls or rocks, where they bask.

**Range:** Local but widespread; more common on and near the coast than inland, where it is almost totally absent from areas of intensive agriculture. It has recently declined in some parts of Northern Ireland (Thompson & Nelson, 2006). Generally distributed over most of England, Wales and the Isle of Man, but absent from inland parts of Cumbria and Northeast England. It occurs on the coasts of southwest Scotland, to North Ayrshire, and very locally in southeast Scotland. There has been a recent marked decline in parts of central and southeast England (Asher *et al.*, 2001). Generally distributed over central and southern Europe, but absent from Corsica and Sardinia, but represented there by *L. paramegera*, which may be a subsp. of *L. megera*. Extending north to Lithuania, and to parts of Denmark, southern Sweden and extreme southeast Norway.

**Status:** Resident.

**Conservation:** This species appears to have declined, especially at inland agricultural sites. In Britain it is a Candidate Priority Species (Fox *et al.*, 2006), largely due to its dramatic recent decline inland in southern England.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Erebia epiphron*

**Species name:** *Erebia epiphron* (Knoch, 1783) (*Papilio*). English name: MOUNTAIN RINGLET.

**Nomenclature:** Satyrinae: Nymphalidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: The species is represented by ssp. *mnemon* (Haworth) in England, and by ssp. *scotica* Cooke in Scotland; but there is disagreement as to whether they are sufficiently distinct to merit subspecific status; and indeed the subspecific status of the British population as a whole is also questioned. According to Ford (1945) and Warren (1948) the Irish specimens belong to “the dark ab. *nelamus* Boisduval which occurs at high elevations in the Alps” (Porter & Emmet, 1989).

**Identification:** Adults representing subspecies *mnemon* and *scotica* are illustrated in Emmet & Heath (1989). Higgins & Riley (1980) illustrate subsp. *mnemon* and several other European forms or subspecies, but treat *scotica* as a synonym of *mnemon*. Asher *et al.* (2001) and Lafranchis (2004) also illustrate the adult. Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Montane grassland.

**Adult microsites:** Adults fly only in bright sunshine, except on rare occasions when temperature is high enough in dull conditions. The adults fly in a zigzag fashion, rarely more than 30cm above the ground, while the female usually sits among grasses, but both sexes feed at any available flower.

**Flight Period:** The main flight period is from late June to late July, but in Scotland it may extend into early August. According to Porter & Emmet (1989), "reports of a two-year life-cycle are unsubstantiated".

**Oviposition site:** On stems of the foodplant, laid singly.

**Larval microsites:** On tussocks of grasses; on the stems of grasses, but further details are unknown (Porter & Emmet, 1989).

**Food and feeding habitats:** The main larval foodplant is *Nardus stricta*, but Asher *et al.* (2001) suggest *Festuca ovina* as a possible alternative. The larvae feed from about August onwards, by night, on the tips of the leaf-blades, retreating into the tussock bases by day. They hibernate in late August or September in 3<sup>rd</sup> instar in grass tussocks, and emerge to feed again from about March; pupating in late May or June either on the ground or low in grass tussocks.

**Effectiveness of different sampling methods:** The adults are difficult to detect, due to both the largely inaccessible habitat and the weather conditions that often prevail in their habitat. They should be searched for in moist, boggy hollows among drier *Nardus* grassland (Porter & Emmet, 1989). The larvae are even more difficult to find as they feed mainly at night.

**Range:** The species was recorded from Croagh Patrick, Co Mayo by Birchall (1866-67). Subsequently (Kane, 1893) refers to a record from near Lough Gill, Co. Sligo and Kane (1893-1901, 1912) recorded finding the species on Nephin Mountain, Co. Mayo on 9th June, 1897. It has not been recorded since then despite several searches, and may well be extinct. Redway (1981) casts some doubt on the authenticity of the Irish records. In Britain the species is confined to the English Lake District, where it occurs from 500-700m, and the central Scottish Highlands from 360-800m. In mainland Europe the species occurs in several subspecies on various mountain ranges from the Cantabrian Mountains eastwards to the Alps and Pennines, and onwards to the Carpathians and the Balkan mountains.

**Status:** Former resident, possibly extinct.

**Conservation:** If this species is proved still to exist in Ireland, its conservation should be a priority, especially in view of the deleterious effects of global warming on species at their altitudinal limits. Forestry and overgrazing could pose extra risks to its survival.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Hipparchia semele*

**Species name:** *Hipparchia semele hibernica* (Linnaeus, 1758) (*Papilio* (*Nymphalis*)). English name: GRAYLING.

**Nomenclature:** Satyrinae: Nymphalidae: Lepidoptera: Insecta.

Synonymy: *anglorum* (Verity, 1924); *angliae* (Verity, 1924).

Subspecific status: Irish specimens are referable to subsp. *hibernica*, or to subsp. *clarensis*, which occurs in the limestone region of the Burren and adjacent parts of Co. Galway, and which is even

more brightly marked, especially on the underside, but Cockayne (1954) considered *clarensis* to be an aberration within a variable population which did not merit subspecific rank.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated (as *Euminis semele*) in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Unimproved dry grassland; dry siliceous heath; coastal grey dunes, machair & vegetated sea-cliffs; limestone pavement; calcareous & non-calcareous moraine & scree.

**Adult microsites:** Adults rest on rocks, bare ground and sand, being very well camouflaged there, as they hide the forewings within the cryptically marked undersides of the hindwings, and tilt towards the sun to minimise shadow visibility. Flight is rapid and erratic, and nectaring, which is only occasional and in the warmest conditions, is on plants such as *Rubus fruticosus* agg., *Erica cinerea* and *Thymus polytrichus*.

**Flight Period:** From about mid-July to early September, although adults have been recorded exceptionally in late June.

**Oviposition site:** On a grass blade or on nearby debris, laid singly. Small, semi-isolated tussocks amongst bare soil are the most favoured.

**Larval microsites:** On grass tussocks; overwintering on the ground in grass-tussocks or in herb-layer litter, or just below ground, sometimes under stones.

**Food and feeding habitats:** Various Gramineae are chosen as foodplants, but especially where these grow in rocky or stony places; including especially *Aira praecox*, *Deschampsia cespitosa*, *Festuca* spp. (especially *F. ovina* agg. and *F. rubra*) and *Ammophila arenaria*. The larvae feed by night, retreating to the base of the grass-tussock by day, from late September, entering diapause in November on or below ground level, where they have occasionally been found in earthen cells below stones. The larvae may also feed occasionally in winter when conditions are mild. They recommence feeding in March, both by day and night. Pupation occurs early in June when the larva burrows into the soil and excavates a small cell lined with silk.

**Effectiveness of different sampling methods:** Adults fly rapidly and erratically over bare or stony ground, and are very difficult to detect when at rest.

**Range:** Apart from the Burren Co Clare, this species is largely confined to dry, sparsely vegetated coastal localities, such as sand-dunes and sea-cliffs. It occurs sporadically inland in limestone districts, and also in granite quarries in Connemara and Co Wicklow and a few other areas. In Britain it is found on most of the southern and western coasts of England and on the entire Welsh coast, as well as extensively on Breckland and elsewhere in East Anglia. It also occurs very locally inland elsewhere on chalk, limestone and heaths. In Scotland it occurs widely on the east coast to the Moray Firth and on the west to Sutherland, as well as in the Inner and Outer Hebrides, but is absent from the Northern Isles; locally common in the Isle of Man. Widely distributed but local over much of central and southern Europe, but absent from much of inland France, all of Greece and much of Romania and Bulgaria; occurring in Denmark, Poland and much of the Baltic States; extending locally, and mainly coastally, to about 62°N in Fennoscandia (Gustafsson, 2004).

**Status:** Local resident.

**Conservation:** This species seems to have declined in some areas, and is confined to very narrow coastal bands of habitat in many others, but it is probably stable in general.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Pyronia tithonus*

**Species name:** *Pyronia tithonus britanniae* (Verity, 1914) [*tithonus tithonus* (Linnaeus, 1767)] (*Papilio* (*Nymphalis*)). English name: GATEKEEPER.

**Nomenclature:** Satyrinae: Nymphalidae: Lepidoptera: Insecta.

Synonymy: *pilosellae* (Fabricius, 1775)

Subspecific status: British and Irish specimens are referable to subsp. *britanniae*.

**Identification:** Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Tall-herb & grassy forest clearings; field margins.

**Adult microsites:** The adults favour warm, sheltered hedge banks and south-facing margins of woodland, where both sexes spend much time basking on leaves, such as those of *Rubus fruticosus* agg., or feeding at flowers of that plants or such herbs as *Centaurea nigra*. Roosting sites are not indicated.

**Flight Period:** Late July to early September.

**Oviposition site:** Usually on grass blades, but often on other vegetation, or simply ejected onto the ground.

**Larval microsites:** On tussocks of grasses. The overwintering site of the larva is not indicated in the literature, but is probably in the base of grass tussocks.

**Food and feeding habitats:** The larva feeds on a range of Gramineae, but especially on narrow-bladed species such as *Festuca* spp. and *Agrostis* spp. (Brakefield & Emmet, 1989). After hatching in September, the larva eats its eggshell and then feeds by day on the grass-blades in still conditions up to about the end of October; it then enters diapause and recommences feeding in April and continues until late June. Feeding after diapause is nocturnal. Pupation occurs about the end of June, the pupa being attached to the exuviae, hanging downwards from vegetation, usually close to the ground.

**Effectiveness of different sampling methods:** Adults fly in sunshine in warm, sheltered localities. They should be looked for in south-facing sites with long grass on the margin of scrub or woodland; the adults being especially partial to *Rubus fruticosus* agg. blossom. Larvae may be swept from leaf-tips by night in spring, or by vacuum-sampling grass tussocks close to scrub borders (Brakefield & Emmet, 1989).

**Range:** Confined to southern and Eastern coasts from about Waterville, Co Kerry to Newcastle, Co. Wicklow, but only very locally found on coasts from East Cork to Wicklow. It also occurs



locally up to about 20km from the coast in Co Waterford and East Cork, extending further inland in West Cork and South Kerry, where it is sometimes not uncommon on rocky outcrops in hilly areas. Generally distributed and common over England south of a line from the Mersey to the Humber, and throughout Wales apart from some inland montane areas; it is also found in most of Lancashire and on the coast of Cumbria to near Whitehaven, while east of the Pennines it has spread northwards to parts of North Yorkshire and Teesside. It is absent from Scotland and the Isle of Man. Generally distributed over southern and western parts of Europe, apart from parts of southern Italy, mainland Greece and Crete; very local in central Europe and the Balkans; absent generally from eastern Europe and recently extinct in Poland; absent from Denmark, Fennoscandia and the Baltic States.

**Status:** Resident, confined to southern parts.

**Conservation:** The population of this species is probably stable overall, but some colonies have been lost due to hedgerow and hedge bank removal. The northward spread observed in Britain has not been recorded in Ireland, possibly due to the presence of natural barriers of high ground.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Maniola jurtina*

**Species name:** *Maniola jurtina* (Linnaeus, 1758) (*Papilio* (*Nymphalis*)). English name: MEADOW BROWN.

**Nomenclature:** Satyrinae: Nymphalidae: Lepidoptera: Insecta.

Synonymy: *janira* (Linnaeus, 1758)

Subspecific status: Irish specimens are referable to subsp. *iernes* Graves, 1930, which is larger and more brightly marked than the nominate subspecies. British specimens which are also more brightly marked than the nominate form are sometimes placed in three further local subspecies; *insularis* Thomson, 1969; *cassiteridum* Graves, 1930 and *splendida* White, 1872; but as discussed by Brakefield & Emmet (1989), these British forms merge spatially, and are of doubtful subspecific status.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Unimproved dry grassland; non-flooded eutrophic humid grassland; improved grassland (hay); coastal grey dunes, machair and dune slacks; field margins & urban parks.

**Adult microsites:** The adults usually roost relatively low in grasses and fly in grassland of a wide range of heights. Basking occurs only intermittently, and nectar sources include in particular *Centaurea nigra* and various *Cirsium* and *Carduus* spp.

**Flight Period:** Early to mid-June until mid-September, peaking in July and early August. The lengthy flight period is probably related to the lack of synchronisation in larval development; furthermore, males tend to fly much earlier than females, leading to a very prolonged flight period (Brakefield & Emmet, 1989)

**Oviposition site:** Mainly on grass-blades, laid singly, but often on dead vegetation or other nearby material. Several ova are laid in a single bout, quite close together.

**Larval microsites:** On tussocks of grasses; overwintering on the ground in the bases of grass tussocks.

**Food and feeding habitats:** The larvae feed on various Gramineae, but especially on *Poa*, *Agrostis* and *Lolium* spp., and avoiding the “coarser and more hirsute species” (Brakefield & Emmet, 1989). Other foodplants specifically mentioned include *Helictotrichon pubescens* and *Brachypodium sylvaticum*. After hatching the larvae consume their eggshell. They then feed on the grass-blades from late September, with only partial winter diapause, until about the beginning of the following June. They feed by day until about March, after which they then feed after dusk, possibly partly as a result of the activities of insectivorous birds (Brakefield & Emmet, *loc. cit.*). When not feeding the larvae retreat to the bases of grass tussocks. A considerable lack of synchronization of larval development has also been noted in this species. Pupation occurs about the beginning of June, with the pupae hanging downwards attached to the larval exuviae, which are in turn fastened to a silken pad, attached to grass-stems or blades.

**Effectiveness of different sampling methods:** Adults are readily found in grassy road margins and long grass. Larvae can easily be found by torchlight on the tops of grass-blades on warm, still nights in May (Brakefield & Emmet, 1989).

**Range:** Generally distributed and common in almost all districts. It also can be found in exposed coastal areas. It is also generally distributed over Britain, apart from Shetland, becoming scarce and local only in the central Highlands and the far north of the Scottish mainland; also common in the Isle of Man. Generally distributed in central and southern Europe including the Mediterranean Islands; occurring also in Denmark and the Baltic States and in southern Fennoscandia locally to about 62°N.

**Status:** Resident.

**Conservation:** The species is not considered under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Coenonympha pamphilus*

**Species name:** *Coenonympha pamphilus* (Linnaeus, 1758) (*Papilio* (*Danaus*)). English name: SMALL HEATH.

**Nomenclature:** Satyrinae: Nymphalidae: Lepidoptera: Insecta.

Synonymy: *scota* Verity, 1911; *londonii* Verity, 1926.

Subspecific status: None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Unimproved dry grassland; coastal grey dunes & machair.

**Adult microsites:** Adults favour areas of grassland with low sward height and abundant flowers and isolated scrub. Roosting adults are occasionally found on flowerheads.

**Flight Period:** Early June to late July, and again in late August and early September. The later generation is probably only partial, and may be totally absent in northern areas.

**Oviposition site:** Eggs are laid singly on the blades of a wide range of Gramineae, apparently sometimes on dead plant material.

**Larval microsites:** On tussocks of grasses; overwintering on the ground in grass tussocks.

**Food and feeding habitats:** The larvae feed on a wide range of Gramineae, but especially on *Poa* and *Festuca* spp. (Brakefield & Emmet, 1989). Autumnal larvae hatch in September and feed until April of the following year, feeding also in mild weather during winter, while summer-brood larvae feed in July; but there is thought to be some variability in rates of larval development as in some other Satyrine species. Pupation usually occurs about late April and again in late July, the pupa being suspended from a silken pad spun in grass or from a plant stem.

**Effectiveness of different sampling methods:** Adults fly rapidly, and usually quite close to the ground, in unimproved grassland.

**Range:** Widely distributed, but rather local. It is rather scarce over much of the south, east, midlands and parts of the west where natural grassland is restricted, but is common in many grassy areas near the coast. This species is generally distributed and locally common over England, Wales, the Isle of Man and Scotland as far north as the Moray Firth and Inner Hebrides; it is more local in the far north of the Scottish mainland, and in the Outer Hebrides. It has shown a decline over much of England. Generally distributed over Europe, apart from Crete and the northern halves of Sweden and Norway.

**Status:** Resident.

**Conservation:** This species appears to have declined considerably in the south and east of the country, and is now almost totally absent from agricultural areas. In Britain it is now classified under the UK Biodiversity Plan as a Candidate Priority Species (Fox *et al.*, 2006) due to a 52% long-term (1976-2004) decline. It is clearly vulnerable to the loss of unimproved grassland.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### ***Coenonympha tullia***

**Species name:** *Coenonympha tullia* (Müller, 1764) (*Papilio*). English name: LARGE HEATH.

**Nomenclature:** Satyrinae: Nymphalidae: Lepidoptera: Insecta.

**Synonymy:** *typhon* (Rottemburg, 1775); *typhon* misspelling.

**Subspecific status:** Irish specimens have at times been described as subsp. *polydama* (Haworth, 1803) (= *polymeda* (Jermyn, 1824) = *iphis* sensu Stephens, 1828) or subsp. *scotica* Staudinger, 1901 (= *laidion* sensu auctt.), but as there is a large degree of local variation across its geographical range, these are often difficult to define or justify.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Oligotrophic humid grassland; raised, blanket & cutover bog;

**Adult microsites:** The adults roost in low vegetation, and fly erratically close to the ground.

**Flight Period:** From about the middle of June to late July, or perhaps early August, but sometimes as early as the beginning of June in Kerry. It probably appears later in the north, as in Britain.

**Oviposition site:** Eggs are laid singly on the foodplant, particularly on dead leaves at the base of the tussock.

**Larval microsites:** On tussocks of low-growing sedges; hibernating on the ground in the bases of sedge tussocks.

**Food and feeding habitats:** The larva feeds by day from late July to late September, and again from late March to late May, on tussocks of *Eriophorum vaginatum*, retreating into the tussocks when not feeding (Melling, T., 1989). Pupation occurs in late May or early June, the pupa being suspended from the foodplant or adjacent vegetation. Overwintering in larval diapause from about October to the following March.

**Effectiveness of different sampling methods:** Adults may be seen flying low over wet blanket bogland, especially near cutover areas, and somewhat less often on raised bogs.

**Range:** Confined to extensive blanket bogs and raised bogs, and almost totally absent from the south and east. It has declined in many parts of the east and north due to loss of habitat, but is probably still much under-recorded in some parts, particularly in the west. The species is local in parts of northern England and Shropshire, but common only in parts of north Northumbria and Cumbria; also occurring in parts of north and west Wales. In Scotland it is widely distributed and often locally common in the Highlands, Inner and Outer Hebrides and Orkney as well as western parts of Galloway, with isolated populations elsewhere. Very local in central parts of Europe, from eastern France and Romania northwards; more widespread in parts of northern Germany, Poland, Denmark and the Baltic States; generally distributed over almost all of Finland and Sweden, and eastern and central parts of Norway.

**Status:** Local resident.

**Conservation:** This species seems to be more or less stable in western areas, but has lost much of its habitat in the midlands, due to drainage, afforestation and peat extraction.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

### *Aphantopus hyperantus*

**Species name:** *Aphantopus hyperantus* (Linnaeus, 1758) (*Papilio (Danaus)*). English name: RINGLET.

**Nomenclature:** Satyrinae: Nymphalidae: Lepidoptera: Insecta.

Synonymy: *hyperanthus* misspelling.

Subspecific status: None.

**Identification:** The adult is illustrated in Emmet & Heath (1989); Higgins & Riley (1980); Asher *et al.* (2001) and Lafranchis (2004). Male and female genitalia are illustrated in Pierce & Beirne (1938). The larva is illustrated in Lewington & Bebington (2002).

**Macrohabitats:** Unimproved dry grassland; non-flooded eutrophic humid grassland; improved grassland (hay); field margins & urban parks.

**Adult microsites:** The adults occur in sheltered grassy situations, more especially in long grass. After dark they roost on grass stems.

**Flight Period:** From about the middle of June to August 10<sup>th</sup>. The flight period ends much earlier and more abruptly than in *Maniola jurtina*, probably partly because larval development is much more synchronized in this species.

**Oviposition site:** The eggs, which are non-adhesive, are simply deposited singly at random around the base of the foodplant.

**Larval microsites:** On tussocks of grasses; overwintering on the ground at the bases of tussocks.

**Food and feeding habitats:** Although it will accept a wide range of Gramineae in captivity, according to Lear (1989) in the wild the larva feed almost exclusively on *Deschampsia cespitosa*, or less often on *Agrostis stolonifera*, however, Asher *et al.* (2001) also list *Dactylis glomerata*, *Brachypodium sylvaticum*, *Elytrigia repens* and *Poa* spp. The larva feeds on the grass blades, hiding by day at the base of a tussock, from late August until entering diapause in October, recommencing feeding in March, when the feed only nocturnally. Feeding may, however, also occasionally take place in mild weather in winter. Pupation occurs in early June, unattached, on or near the ground on a tussock in a slight cocoon surrounded by a few strands of silk.

**Effectiveness of different sampling methods:** Adults are readily found in grassland, usually in damper and more sheltered areas than *Maniola jurtina*, with which it usually flies.

**Range:** Generally distributed over Ireland and common in many areas. It is, however, scarcer where long grass is limited, and is absent in exposed coastal areas, especially in the west, and most extensively in Northwest Mayo. Generally distributed and common over southern central and eastern England and throughout Wales, but absent generally from Cheshire, Lancashire and the Peak District but extending through Yorkshire to Teesside, becoming more widespread in north Northumbria and Cumbria. In Scotland it is widespread in the south and east, extending north to Aberdeenshire; also found in Islay and adjacent parts of Argyll. It has in recent years expanded its range, especially in northeast England and eastern Scotland; absent from the Isle of Man. Generally distributed over central Europe; extending south to northern Iberia, northern Italy and northern Greece; also present in Denmark and the Baltic States. In Fennoscandia it occurs generally in southern Sweden and Finland top about 64°N, also locally to about 62°N in Norway.

**Status:** Resident.

**Conservation:** This species seems to be under little threat nationally, but has become scarce locally due to agricultural intensification.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November 2006.

## SPECIES ACCOUNTS OF IRISH NOCTUIDAE

### Introduction

**Species:** All resident Irish Noctuidae area covered in this account, including those which have not been recorded for many years, and which may be extinct. Three migrant species (*A. ipsilon*, *P. saucia* and *A. gamma*) are also included, as they have regularly been observed as larvae, and are at least in some years able to complete their lifecycles during the summer.

**Species name:** The species name is followed by the citation of author and date of publication, with conventional use of brackets. Nomenclature follows Karsholt & Razowski (1996), with the inclusion of more recent taxonomic changes to conform to current usage in Kimber (2005). Where the species was originally described in a different genus, the original genus is indicated in brackets. This is followed by the English name in small capitals.

**Nomenclature:** The position of the species within subfamily, family, order and class, as applied by Karsholt & Razowski (1996).

**Synonymy:** Specific synonyms are listed chronologically; the synonyms quoted are based on Kloet & Hincks (1972), but include more recent modifications. Misidentifications are indicated by “sensu”, and where this applies to several authors it is indicated by “sensu auctt.”. Published misspellings are also indicated.

**Subspecific status:** This refers only to subspecies recorded from Ireland. In general the designation of subspecies follows Heath & Emmet (1983) and Emmet & Heath (1991), but it must be emphasized that opinions differ widely on the designation and definition of many subspecies in the Lepidoptera.

**Identification:** Most Macrolepidoptera are relatively easily identified by wing markings alone, and reference is made to the several British works illustrating the species. In cases where wing markings alone are insufficient for reliable identification, examination of the terminalia is usually required. The works of Pierce (1909, 1942), Pierce & Beirne (1938) and Pierce & Metcalfe (1938) illustrate the male and female terminalia of the great majority of the British Noctuidae. Some of the illustrations in Pierce are small and difficult to interpret, and the considerable intervening changes in nomenclature cause further difficulty. The nomenclature used in these works is therefore included, and where specific and/or generic names differ between Pierce (1909 – males) and Pierce (1942 – females) each is shown, the male preceding the female; synonyms indicated by Pierce are also included in brackets.

**Macrohabitats.** This refers only to the macrohabitats in which the species can breed. Macrohabitat categories used are based on a modified version of Speight *et al.* (2003a), adapted to cover Irish Lepidoptera.

**Adult Microsites:** This refers to the microsite in which the adults can be found; where information is available, diurnal and nocturnal microsites are treated separately. For many species no indication of the adult microsite could be found in the literature.

**Flight Period:** Information on Irish flight periods is obtained largely from the *Irish Noctuidae Database* (an unpublished spreadsheet containing all the Irish Noctuidae records of the compiler). Where the observed Irish flight periods differ substantially from those given in the British literature, it is indicated at this point. Where there is insufficient information on which to base the flight period in Ireland this is also indicated. This often arises in the case of species for which only historical records are available, where at most only the year is given on the data label.

**Oviposition site:** This refers to the oviposition method used by the female, and to the selection of site, on or within a substrate, based mainly on information in: Emmet (1991), Emmet & Heath (1991) and Heath and Emmet (1983). The precise method and site of oviposition is at best poorly known for many species, but the form of the ovipositor is a good indicator of whether the ova are inserted into plant tissue (sharply pointed) or laid on the surface (flattened tip).

**Larval microsites:** The microsite in which the larva lives and feeds; the microsite definitions used are based on a modified version of Speight *et al.* (2003b), adapted to cover the British and Irish Lepidoptera.

**Food and feeding habitats:** The foodplant or other food substance used by the larva. The location and pattern of feeding are also indicated, and whether the larva overwinters/hibernates. The main source used is Emmet (1991), but with additional information from Goater (1983), Lorimer (1979, 1983), Skinner (1998) and Brooks (1991).

**Effectiveness of different sampling methods.** This refers mainly to the relative efficiency of light-trapping, but also to other methods for obtaining adults, such as Malaise Traps, sugaring and daytime recording. There appears to be no information on the use of pheromones as attractants for Noctuidae in Ireland. The great majority of Noctuidae can be successfully sampled using light-traps, and the incentives for using pheromone baits are presumably less than with other Lepidoptera families. Records from Malaise traps are derived from the 2002 BIOFOREST trapping season, and are inevitably biased towards species, which were common in the trapping areas. Where information is available, methods of locating the immature stages are also indicated.

**Range:** This is indicated firstly within Ireland, followed by Britain, and then continental Europe. "Europe" here means the whole of continental Europe including European Turkey, apart from the area "EE" (Eastern Europe) of Karsholt & Razowski, which refers to territories of the former Soviet Union apart from the Baltic States. Eastern Europe in this sense is not included in the distribution section, as only presence or absence there is indicated by Karsholt & Razowski (1996). Where relevant, reference is also made to the Mediterranean islands (which here means Corsica, Sardinia, Sicily, Malta, Crete and Cyprus). Information on European distribution has been obtained mainly from Nowacki & Fibiger (1996), supplemented by Emmet & Heath (1991) and Heath & Emmet (1983). Extensive use has also been made of two Scandinavian websites: <http://www.nhm.uio.no/norlep/> for Norway, and Gustafsson (2004) for Sweden.

**Status.** This indicates whether the species is resident or native, or whether it is considered to be extinct. Substantial regional differences in status are also indicated.

**Conservation.** This indicates whether the species is considered to be under threat in Ireland, and if so what the main threats are.



### Compiler and compilation date.

The following Noctuidae have been recorded from Ireland, but are excluded from the species accounts, as they are considered to be either migrants which have rarely, if ever, successfully bred in Ireland, or because they are considered adventives.

- Agrotis crassa* (Hübner, 1803). GREAT DART  
*Catocala fraxini* (Linnaeus, 1758) CLIFDEN NONPAREIL  
*Discestra trifolii* (Hufnagel, 1766) THE NUTMEG  
*Eublemma ostrina* (Hübner, 1808) PURPLE MARBLED  
*Eublemma parva* (Hübner, 1808) SMALL PURPLE MARBLED  
*Euchalcia variabilis* (Piller & Mitterpacher, 1783) PURPLE-SHADED GEM  
*Eurois occulta* (Linnaeus, 1758) GREAT BROCADE  
*Helicoverpa armigera* (Hübner, 1808) SCARCE BORDERED STRAW  
*Heliothis peltigera* (Denis & Schiffermüller, 1775) BORDERED STRAW  
*Minucia lunaris* (Denis & Schiffermüller, 1775) LUNAR DOUBLE-STRIPE  
*Mythimna albipuncta* (Denis & Schiffermüller, 1775) THE WHITE-POINT  
*Mythimna loreyi* (Duponchel, 1827) THE COSMOPOLITAN  
*Mythimna unipuncta* (Haworth, 1800) THE WHITE-SPECK  
*Mythimna vitellina* (Hübner, 1808) THE DELICATE  
*Parastichtis suspecta* (Hübner, 1817) THE SUSPECTED  
*Pechipogo strigilata* (Linnaeus, 1758) COMMON FAN-FOOT  
*Schinia scutosa* (Denis & Schiffermüller, 1775) SPOTTED CLOVER MOTH  
*Spodoptera exigua* (Hübner, 1808) SMALL MOTTLED WILLOW  
*Thysanoplusia orichalcea* (Fabricius, 1775) SLENDER BURNISHED BRASS  
*Trichoplusia ni* (Hübner, 1803) THE NI MOTH

### Species Accounts

#### *Abrostola tripartita*

**Species name:** *Abrostola tripartita* (Hufnagel, 1766) (*Phalaena* (*Noctua*)). English name: THE SPECTACLE.

**Nomenclature:** Plusiinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *triplasia* sensu auctt.; *asclepiadis* sensu Haworth, 1809; *asclepiades* missp.; *urticae* (Hübner, 1817).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) (both as *A. triplasia*), and Skinner (1998). The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Habrostola/Abrostola urticae (tripartita)*).

**Macrohabitats:** Tall-herb & grassy forest clearings; humid non-flooded eutrophic grassland; lightly grazed improved grassland; fallow land & field margins.

**Adult microsites:** Not indicated.

**Flight Period:** From about the middle of May to mid-August, peaking in mid-July. For Britain, Emmet (1991) gives late May to July, but Lorimer (1983) gives late June to mid-July with a second brood August to September in southern England, but "a prolonged emergence from late June to mid-July" further north.

**Oviposition site:** Ova are laid singly on the leaves of the foodplant (Lorimer, 1983).

**Larval microsites:** On tall herbs & low-growing plants of the herb layer; overwintering in herb-layer litter.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding externally on *Urtica dioica*, both diurnally and nocturnally (Lorimer, 1983); but only nocturnally according to Emmet (1991). Late July to September; pupating in a cocoon in detritus in October and overwintering as a pupa.

**Effectiveness of different sampling methods:** Regularly taken at all types of light-trap; the adult also comes to flowers, but not to sugar (Lorimer, 1983).

**Range:** Generally distributed and common throughout Ireland. Generally distributed and often common throughout Britain, but absent from Shetland. Found throughout continental Europe, apart from European Turkey; also in Corsica, Sardinia and Sicily; extending to central Fennoscandia.

**Status:** Resident.

**Conservation:** Not under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

### *Abrostola triplasia*

**Species name:** *Abrostola triplasia* (Linnaeus, 1758) (*Noctua*). English name: DARK SPECTACLE.

**Nomenclature:** Plusiinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *trigemina* (Werneburg, 1864); *triplacia* misspelling.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) (both as *A. trigemina*), and Skinner (1998). The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Habrostola/Abrostola triplasia*)

**Macrohabitats:** Tall-herb & grassy forest clearings; humid non-flooded eutrophic grassland; fallow land & field margins.

**Adult microsites:** Not indicated, but “not often seen by day” (Lorimer, 1983).

**Flight Period:** From about the middle of June to mid-August, peaking about mid-July. Emmet (1991) gives June and early July for Britain, but Lorimer (1983) mentions a second brood in south-west England, but mainly Univoltine elsewhere, emerging in June.

**Oviposition site:** Not indicated.

**Larval microsites:** On tall herbs & low-growing plants of the herb layer; overwintering in herb-layer litter.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeds externally, both by day and by night, in August and September on *Urtica dioica*; in Britain also known from *Humulus lupulus*. Pupating in October in a silken cocoon in a leaf, where it also overwinters.

**Effectiveness of different sampling methods:** Found very regularly at light-traps; from dusk onwards it also feeds at flowers.

**Range:** Common and generally distributed over Ireland, except perhaps in the north of Northern Ireland, where it is local. Widespread over Britain, but somewhat local, extending to Orkney and the Outer Hebrides, but generally scarce over eastern England and Scotland. Recorded from all European mainland countries except Turkey; also occurring on the Mediterranean islands; extending to southern Norway and central Sweden.

**Status:** Resident.

**Conservation:** This species is considered unthreatened in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

### *Acronicta alni*

**Species name:** *Acronicta alni* (Linnaeus, 1767) (*Phalaena (Noctua)*). English name: ALDER MOTH.

**Nomenclature:** Acronictinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Acronycta/Acronicta alni*).

**Macrohabitats:** Acidophilous *Quercus*, *Betula* & *Alnus* forests; *Betula/Pinus* & *Alnus* swamp; brook floodplains; scattered *Betula* trees; fen carr.

**Adult microsites:** The adult is believed to be largely a treetop dweller (Lorimer (1983).

**Flight Period:** June; Lorimer (1983) gives mid-May until July in Britain; while Thompson & Nelson (2003) indicate the beginning of June to late July.

**Oviposition site:** On the leaves of the foodplant, laid singly.

**Larval microsites:** On the foliage of trees.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding in July and August, on the foliage of mainly *Betula* spp. and *Alnus glutinosa*, but also on other deciduous trees including *Quercus* spp and *Salix caprea*. It is reported to occur frequently high in the canopy. It pupates in a cocoon in September in a tunnel in pith or rotten wood, in which it also overwinters.

**Effectiveness of different sampling methods:** Attracted to light, but more especially to the more powerful mercury-vapour light-trap, before which it appeared to be rare (Lorimer, 1983); apparently little attracted to flowers or artificial baits.

**Range:** Local in widely scattered parts of Ireland, and usually found in only small numbers. Kane (1901) and Donovan (1936) considered it a rare Irish species, but, as in Britain, the use of more powerful light-traps has shown it to be more widely distributed than previously thought. Locally distributed over England and Wales to Cumbria and Yorkshire; recorded from single sites in Scotland (Dumfriesshire) and the Isle of Man. Generally distributed over Europe as far north as central Sweden, but absent from Portugal, the Mediterranean Islands and the southern Balkans.

**Status:** Local resident.

**Conservation:** Loss of alder carr and other types of wet woodland could be a threat to this species.

**Compiler:** K. G. M. Bond. Date of compilation: 6<sup>th</sup> February 2006.

### *Acronicta euphorbiae*

**Species name:** *Acronicta euphorbiae myricae* Guenée, 1852 [*euphorbiae euphorbiae* (Denis & Schiffermüller, 1775) (*Noctua*)]. English name: SWEET GALE MOTH.

**Nomenclature:** Acronictinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: British and Irish specimens are referable to subsp. *myricae*. The nominate form has a paler, slightly ochreous grey forewing, while Irish specimens are reported to be variable, but in general darker and more distinctly bluish-tinged (Lorimer, 1983).

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Acronycta/Acronicta myricae*).

**Macrohabitats:** Dry siliceous heath; blanket bog & cutover bog.

**Adult microsites:** It rests by day, often on rocks (Lorimer, 1983).

**Flight Period:** April to early June in Britain, but the occurrence of a second brood of *A. euphorbiae* in western Ireland is reported by Huggins (1976); the adults appearing May and early June, and again in August. The single Irish record on the *Irish Noctuidae Database* is June 11<sup>th</sup>.

**Oviposition site:** On vegetation, more rarely on rocks or on the ground.

**Larval microsites:** Polyphagous, but mainly on low shrubs, locally also on low-growing herbs or trees; on the foliage.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Polyphagous on moorland plants, feeding in Britain from July to September, but in two broods in Ireland, and also appearing in June and July, at least in the west (Huggins, 1976), on *Calluna vulgaris* and *Myrica gale*, but it has also been recorded at times on *Betula* and *Salix* spp., *Taraxacum* agg. and *Plantago* spp. Pupating in June and in October [only the latter in Britain] in a cocoon, usually in detritus, but often under a stone or between the stones of a dry-stone wall. Overwintering as a pupa.

**Effectiveness of different sampling methods:** Adults have been taken at mercury-vapour light-traps; Lorimer (1983) reports that they are also attracted to flowers and sugar.

**Range:** Very local, and almost totally confined to the west and southwest, where it is mainly coastal. Donovan (1936) recorded the larvae as frequent on the co. Cork coast, from Roche's Point westwards to Glandore, and indicated several sites in co. Kerry. In the north it is rare in Donegal, there are isolated old records from cos Antrim, Armagh and Kildare. Found very locally in Scotland from Galloway to Sutherland, but mainly in and near the Cairngorms; also found on the coast near Aberdeen and in the Inner Hebrides (Canna). In England the only confirmed records are historic ones from Northumberland. Generally distributed over mainland Europe from northern Sweden to the Mediterranean Islands, apart from Crete; also unrecorded from European Turkey.

**Status:** Very local resident in western half of Ireland.

**Conservation:** As the species is largely a cliff-dweller, most of its habitats appear to be relatively unthreatened, but some of its inland sites in the west may be under threat due to loss of bog habitat.

**Compiler:** K. G. M. Bond. Date of compilation: 6<sup>th</sup> February 2006.

### *Acronicta leporina*

**Species name:** *Acronicta leporina* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English name: THE MILLER.

**Nomenclature:** Acronictinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *bradyporina* (Hübner, 1813).

Subspecific status: None, although there are local geographical forms.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Acronycta/Acronicta leporina*).

**Macrohabitats:** *Betula* & *Alnus* forests; *Alnus* swamp; brook floodplains; scattered *Betula* trees; fen carr; cutover bog.

**Adult microsites:** Not indicated.

**Flight Period:** Mid-June to early August. Lorimer (1983) gives late May and June, with a partial second brood in the south in late August.

**Oviposition site:** On the leaves of the foodplant, usually laid singly.

**Larval microsites:** On the foliage of trees.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeds from late July to early October on *Betula* spp., also on *Alnus glutinosa*, and occasionally on *Populus* and *Salix* spp., at first feeding only on the underside of the leaf, but later consuming the entire leaf, resting on the underside of a leaf when not feeding. The larva tunnels into rotten wood or pith to pupate in a cocoon in October, and may overwinter twice, or even thrice. Donovan (1936) states that "at times, the pupae lie over for two years", and that the moths have a long emergence period, bred specimens having emerged over the period May to August.

**Effectiveness of different sampling methods:** Adults are attracted to light-traps in generally small numbers. Lorimer (1983) states that at dusk it also feeds on flowers and is attracted to sugar. Donovan (1936) wrote that it was common as a pupa in rotten stumps of *Alnus* in county Cork.

**Range:** Locally distributed over many parts of Ireland, but generally scarce; absent from extensive areas, and rare in the western half of Ulster. Generally distributed over most of England and Wales and common in the southeast, but apparently absent from much of Cornwall and northern England. Widely distributed in the Scottish Highlands, and extending from Aberdeen to the Inner Hebrides and near Edinburgh; also found on the Isle of Arran, but unrecorded from the Isle of Man. Generally distributed over most of Europe, extending to northern Sweden, but apart from Corsica, absent from the Mediterranean Islands, Albania, Greece and European Turkey.

**Status:** Local resident.

**Conservation:** This local species will be adversely affected by any loss of its wet woodland habitats.

**Compiler:** K. G. M. Bond. Date of compilation: 6<sup>th</sup> February 2006.

### *Acronicta megacephala*

**Species name:** *Acronicta megacephala* (Denis & Schiffermüller, 1775) (*Noctua*). English name: POPLAR GREY.

**Nomenclature:** Acronictinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Acronycta/Acronicta megacephala*).

**Macrohabitats:** *Salix* swamp; softwood alluvial forest; scattered *Salix* and *Populus* trees; fen carr.

**Adult microsites:** Rests by day on tree-trunks or fences.

**Flight Period:** From about the middle of June to late July; occasional specimens have been recorded in mid-May and early August. For Britain, Lorimer (1983) gives May and June as the flight season, while Thompson & Nelson (2003) give mid-May to late July.

**Oviposition site:** Ova are laid singly on the leaves of the foodplant.

**Larval microsites:** On the foliage of trees.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding from late July to early September on *Populus* spp., especially *P. nigra* and *P. tremula*, but sometimes on *Salix* spp. The larva rests by day on a leaf of the foodplant, and pupates in September a simple cocoon, usually in a bark crevice or rotten wood, otherwise in the soil. Overwintering as a pupa.

**Effectiveness of different sampling methods:** The adult is a regular visitor to light-traps; and, according to Lorimer (1983) it also feeds at flowers, honeydew and sugar from dusk onwards.

**Range:** Locally distributed over much of Ireland, and fairly common in some wooded areas. Widely distributed over England and Wales, but more common in the east (Lorimer, 1983) and rather local from Yorkshire northwards to the Scottish border. It also occurs in the Highlands, extending to Skye and the north coast; but is not known in the Isle of Man. Found throughout mainland Europe to northern Sweden, but absent from Sardinia, Malta and Crete.

**Status:** Resident.

**Conservation:** The status of this species in Ireland does not appear to be threatened.

**Compiler:** K. G. M. Bond. Date of compilation: 6<sup>th</sup> February 2006.

### *Acronicta menyanthidis*

**Species name:** *Acronicta menyanthidis* (Esper, 1789) (*Phalaena* (*Noctua*)). English name: LIGHT KNOT GRASS.

**Nomenclature:** Acronictinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None

Subspecific status: None. Emmet (1991) indicates Irish specimens as belonging to subspecies *scotica*, which is known from central and northern Scotland; but according to Myers (pers. comm.) they do not belong to ssp. *scotica*.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Acronycta/Acronicta menyanthidis*).

**Macrohabitats:** Humid/flooded oligotrophic grassland; wet heath; raised bog, blanket bog & cutover bog.

**Adult microsites:** "Rests by day, often fully exposed on rocks, fence-posts or even on the ground" (Lorimer, 1983).

**Flight Period:** Mid-April to mid-June. According to Lorimer (1983), in Britain it emerges from mid-May through June to July.

**Oviposition site:** Not stated; "laid in irregular, overlapping batches of 20 or more" (Lorimer, 1983).

**Larval microsites:** On low shrubs; or on low-growing plants of the herb layer; on the foliage.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): More or less polyphagous on moorland shrubs and herbs, but especially on *Calluna vulgaris* and *Myrica gale*, August and September, then pupating in a cocoon among detritus in October and overwintering there.

**Effectiveness of different sampling methods:** Adults have been taken at mercury-vapour light-traps. It is also reported to feed at flowers and sugar from dusk (Lorimer, 1983).

**Range:** Very local, and almost totally confined to certain bogs in the west and midlands. A specimen found in the Ballyhoura Mts, Co. Cork, in 2005 appears to represent the only record south of the Burren, Co. Clare. There are also old records from cos Armagh, Kildare and Tyrone. In Britain it is confined to acid moorland northwest of a line from the Severn estuary to north Lincolnshire, extending to the north of the Scottish mainland and the Inner and Outer Hebrides. Widespread over northern and central Europe from Northern Sweden to Austria; also known from Romania, Italy and Switzerland, but not recorded from Iberia or Luxemburg.

**Status:** Very local resident.

**Conservation:** This species is under threat from any losses of bogs, particularly raised bogs, due to drainage or afforestation.

**Compiler:** K. G. M. Bond. Date of compilation: 6<sup>th</sup> February 2006.

### *Acronicta psi*

**Species name:** *Acronicta psi* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English name: GREY DAGGER.

**Nomenclature:** Acronictinae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *cuspis* sensu Stephens, 1829; *suffusa* Tutt, 1888; *bidens* Tutt, 1891.

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Acronycta*/*Acronicta psi*), and in Heath (1969).



**Macrohabitats:** *Quercus*/*Fraxinus*/*Corylus*, acidophilous *Quercus* & *Betula* forests; scattered *Quercus*, *Populus* & *Betula* trees; hedges & urban parks.

**Adult microsites:** "Frequently seen by day at rest on tree-trunks or fences" (Lorimer, 1983).

**Flight Period:** Beginning of June to late July; occasional specimens have been recorded in mid-May or early August.

**Oviposition site:** Ova are laid singly on the leaves of the foodplant.

**Larval microsites:** On the foliage of trees.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Polyphagous on deciduous trees and shrubs, and also recorded from *Pteridium aquilinum* (Allan, 1949), feeding from late August to October, then pupating in a cocoon behind loose bark, or sometimes in rotten wood or earth; overwintering in this stage.

**Effectiveness of different sampling methods:** The adults are regularly taken at light-traps; they are also reported to come to flowers and sugar soon after dusk (Lorimer, 1983). The distinctive larva is often found on the foliage of trees and bushes.

**Range:** Widely distributed over Ireland, and fairly common in many well-wooded areas. Generally distributed and common in many places over England, Wales and the Isle of Man, widely distributed in Scotland and extending to the north of the mainland and the Inner and Outer Hebrides. Generally distributed over Europe from the Mediterranean northwards to southern Norway and Northern Sweden.

**Status:** Widespread resident.

**Conservation:** This species does not seem generally to be under threat.

**Compiler:** K. G. M. Bond. Date of compilation: 6<sup>th</sup> February 2006.

### *Acronicta rumicis*

**Species name:** *Acronicta rumicis* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English name: KNOT GRASS.

**Nomenclature:** Acronictinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *salicis* Curtis, 1826; *euphorbiae* sensu Haworth, 1809; *euphrasiae* sensu Stephens, 1829; *nobilis* Gregson, 1864.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Acronycta*/*Acronicta rumicis*).

**Macrohabitats:** Mature and sapling *Quercus*/*Fraxinus*/*Corylus*, acidophilous *Quercus* and *Betula* forests; rich-soil scrub; scattered *Betula* and *Salix* trees; tall-herb & grassy clearings; hedges & urban parks.

**Adult microsites:** "Rests by day on tree-trunks or fences" (Lorimer, 1983).

**Flight Period:** End of May to mid-July. Emmet (1991) give May to early July in Britain with a partial second generation in the south. Thompson & Nelson (2003) give "late April to September". There are six Irish larval records on the *Irish Noctuidae Database*, from late August and early September.

**Oviposition site:** On the foodplant "in fairly large, overlapping batches" (Lorimer, 1983).

**Larval microsites:** On the foliage of trees shrubs and forbs.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Polyphagous on deciduous trees and shrubs and on herbaceous plants, July to September, pupating in a cocoon in detritus in October and overwintering there.

**Effectiveness of different sampling methods:** Adults are regularly taken at mercury-vapour light-traps; according to Lorimer (1983), they also visits flowers from early dusk, and later come to sugar. The caterpillar is often found on the foliage of its foodplants by day.

**Range:** Generally distributed and fairly common in many area of Ireland, especially in scrub and woodland. Widely distributed over Britain, extending to the north of the mainland and the Inner and Outer Hebrides. Generally distributed over Europe from southern Norway and Northern Sweden southwards, but unrecorded from Malta.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 6<sup>th</sup> February 2006.

### *Actebia praecox*

**Species name:** *Actebia praecox* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English name: PORTLAND MOTH.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Senta/Agrotis praecox*).

**Macrohabitats:** Coastal grey dunes and dune slacks.

**Adult microsites:** The adult can "sometimes be shaken from overhanging roots of marram [*Ammophila arenaria*] by day" (Goater, 1979).

**Flight Period:** Probably as in Britain, in late August and September.

**Oviposition site:** Unknown.

**Larval microsites:** On low-growing plants and shrubs of the herb layer, when not feeding buried in sand.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally on *Salix repens* where that species is present; otherwise on *Lotus*, *Stellaria*, *Cerastium* and *Artemisia* spp., and occasionally *Lupinus arboreus*. September to the following June, the larva continues feeding through the winter.

**Effectiveness of different sampling methods:** Sometimes found at light, but may also be found on flowers of ragwort, marram and heather after dark (Goater, 1979).

**Range:** Very locally scattered around the Irish coast, but unrecorded from counties Louth, Meath, Dublin, Wicklow and Wexford. There are very few recent Irish records, and searches of many of its former sites have proved negative. In Britain the species is found on the coast of east Dorset, and at scattered coastal sites in southwest England and Wales. It also occurs on the coasts of northwest England, Isle of Man and western Scotland to the Outer Hebrides. In eastern Britain it occurs on coasts from the Dornoch Firth south to Essex, and locally inland in northeast Scotland, Lincolnshire and south Yorkshire. Generally distributed in western and central Europe to Poland and the Baltic States, but absent from Iberia and the Mediterranean islands; also occurring in Italy, but in the Balkans recorded from only former Yugoslavia, Romania and Bulgaria; in Fennoscandia it occurs in south and east Norway, extending to the northern shores of the Gulf of Bothnia in Sweden and Finland.

**Status:** Very local resident, apparently declining.

**Conservation:** This absence of recent records apart from one from Co. Mayo is a cause of concern. It is possible that the loss of grey-dune and dune scrub habitat in some of its sites have caused it to become extinct there.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Agrochola circellaris*

**Species name:** *Agrochola circellaris* (Hufnagel, 1766) (*Phalaena*). English name: THE BRICK.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *ferruginea* (Hufnagel, 1766).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Mellinea ferruginea/Agrochola circellaris*).

**Macrohabitats:** Mature and sapling *Quercus/Fraxinus/Corylus* forest; rich-soil scrub; hedges & urban parks.

**Adult microsites:** Not indicated.

**Flight Period:** Probably from about the end of August to the end of October or early November.

**Oviposition site:** On twigs of trees, beside buds; laid singly or in small groups.

**Larval microsites:** On trees; on the foliage and fruiting bodies.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds from April to June or July, at first on the buds, and later on the flowers of *Ulmus glabra*, and occasionally on those of other deciduous trees, especially *Populus* spp. and *Fraxinus excelsior*, completing its development on the seeds or leaves; then aestivating for some weeks in a subterranean cocoon before pupating in late July or August. Overwintering as an ovum.

**Effectiveness of different sampling methods:** The adult comes to light, and according to Lorimer, (1983) also to ivy-blossom, berries and fruit, and in the north of its range, to heather.

**Range:** Local, but apparently fairly common in well-wooded localities. Earlier writers described it as "very common and generally distributed (Kane, 1901); "everywhere very abundant" (Donovan, 1936) and "common and generally distributed from north to south" (Baynes, 1964). Its recent apparent decline is may be largely due to the decline in elm. Widely distributed over Britain, extending locally northwards to the Inner and Outer Hebrides, and to Orkney. It also occurs on the Isle of Man. Generally distributed over Europe and some of the Mediterranean islands, but not recorded from Albania or European Turkey, widespread in central and southern Fennoscandia, and extending locally to about 70°N, and also recorded from Iceland.

**Status:** Local resident.

**Conservation:** This species is probably decreasing due to the loss of elm.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Agrochola helvola*

**Species name:** *Agrochola helvola* (Linnaeus, 1758) (*Phalaena* (*Bombyx*)). English name: FLOUNCED RUSTIC.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *rufina* (Linnaeus, 1758).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Anchoscelis rufina*/*Anchoscelis helvola* (*rufina*)).

**Macrohabitats:** Mature and sapling *Quercus*/*Fraxinus*/*Corylus* & acidophilous forests; scattered *Quercus*, *Populus*, *Salix* and *Betula* trees; urban parks.

**Adult microsites:** Not indicated.

**Flight Period:** September to late October.

**Oviposition site:** On twigs or bark of trees, in small irregular batches.

**Larval microsites:** On trees and shrubs, possibly locally on low shrubs.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding from April to June on the foliage of various deciduous trees, including *Quercus* spp., *Ulmus procera*, *Betula*, *Salix* and *Crataegus* spp.; northern moorland populations in Britain are reported to feed on *Calluna vulgaris* and *Vaccinium myrtillus*, but its relative scarcity in northern parts of Ireland may indicate the absence of such populations in Ireland. Other foodplants mentioned by Mazzei *et al.* (2005) and Salvella (2004) include *Corylus avellana*, *Erica*, *Populus tremula*, *Vaccinium myrtillus* and *Sorbus aucuparia*. It is full-fed in June, when it aestivates, pupating in August in a subterranean cocoon. Overwintering as an ovum.

**Effectiveness of different sampling methods:** The adult is taken at mercury-vapour light-traps; it is also reputed to be strongly attracted to blackberries, and to come to “the normal foods frequented by autumn-flying moths” (Lorimer, 1983).

**Range:** Rather local, but widely distributed. It is certainly scarce in Ulster, where it is currently known from only one Co. Tyrone locality. It is more common in cos Clare and Wicklow. Widely distributed and locally common over much of Britain; in Scotland it extends locally to the Inner Hebrides and Caithness. Found in small numbers on the Isle of Man. Generally distributed over Europe, including Corsica and Sicily; in Norway extending only to Sognefjord (61°N), but extending to almost the extreme north of Sweden and Finland.

**Status:** Resident.

**Conservation:** The Irish status of this species seems to be relatively stable, but there may have been local losses due to the decline in elm.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Agrochola lota*

**Species name:** *Agrochola lota* (Clerck, 1759) ([*Phalaena*]). English name: RED-LINE QUAKER.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Orthosia/Agrochola lota*).

**Macrohabitats:** *Salix* swamp; softwood alluvial forest; isolated *Salix*; urban parks; fen carr.

**Adult microsites:** Not indicated.

**Flight Period:** Late September to early November. Lorimer (1983) states that the moth emerges in October, rather earlier in the north.

**Oviposition site:** On twigs of the foodplant, laid singly.

**Larval microsites:** On the foliage and fruiting bodies of trees.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding from April to June, then entering diapause for several weeks in a subterranean cocoon before pupating in August. The larva feeds initially on the catkins of *Salix* spp., later in spun shoots, and finally fully exposed at night on the foliage, spending the day between spun leaves. The ovum overwinters.

**Effectiveness of different sampling methods:** The adults comes freely to light, it also feeds at ivy-blossom, berries and sugar (Lorimer, 1983).

**Range:** Widely distributed and fairly common in many Irish localities. Widely distributed over Britain, and common in many districts in England and Wales, becoming scarcer and local in Scotland, but extending to the Outer Hebrides and Caithness; also occurring on the Isle of Man. Generally distributed over Europe, apart from Albania and European Turkey, also on Sardinia, extending to southern Norway, southern and eastern Sweden and north-central Finland.

**Status:** Resident

**Conservation:** The species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Agrochola lychnidis*

**Species name:** *Agrochola lychnidis* (Denis & Schiffermüller, 1775) (*Noctua*). English name: BEADED CHESTNUT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *lychnides* misspelling; *pistacina* (Denis & Schiffermüller, 1775); *lineola* (Donovan, 1801), nec (Panzer, 1785); *sphaerulatina* (Haworth, 1809); *ferrea* (Haworth, 1809); *venosa* (Haworth, 1809: 232) nec (Haworth, 1809: 218).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Anchoscelis pistacina/Agrochola lychnides (pistacina)*).

**Macrohabitats:** Sapling *Quercus/Eraxinus/Corylus* and acidophilous forests; rich-soil scrub; tall-herb and grassy forest clearings; field margins, hedges and urban parks.

**Adult microsites:** Not indicated.

**Flight Period:** Late September to the beginning of October. Thompson & Nelson (2003) suggest that it flies as early as the end of August, but Lorimer gives September and October.

**Oviposition site:** Laid "in crevices"; the more general site not being indicated (Lorimer, 1983).

**Larval microsites:** On shrubs, later sometimes on trees, in both cases on the foliage.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Polyphagous on herbaceous plants, including Gramineae (Skinner, 1998) when young, later sometimes climbing to

feed on the foliage of deciduous trees and shrubs, especially *Crataegus* spp., March to June, then aestivating in a subterranean cocoon for several weeks before pupating in August. Overwintering as an ovum.

**Effectiveness of different sampling methods:** The adults comes freely to light, it also

**Range:** Up to the time of Baynes (1964) this species was considered to be common and widely distributed. Recent fieldwork shows that it is now rare in Ulster, and currently unknown in Donegal. Elsewhere it seems to be widely distributed and locally fairly common, or at least was so up to the 1980's. In Britain the species is generally distributed as far north as Lancashire on the west coast and Tyneside in the east, becoming rare in Cumbria. It is rare and local in Scotland as far north as near Inverness. Not recorded from the Isle of Man. Generally distributed over central and southern Europe and in the Mediterranean islands, but in Fennoscandia it extends to only the south and southeast of Sweden, and it is absent from the Baltic States.

**Status:** Resident, probably locally in decline.

**Conservation:** Recent local decline in this species should be monitored.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Agrochola macilenta*

**Species name:** *Agrochola macilenta* (Hübner, 1809) (*Noctua*). English name: YELLOW-LINE QUAKER.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *flavilinea* (Haworth, 1809)

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Orthosia/Agrochola macilenta*).

**Macrohabitats:** Humid *Fagus*, *Quercus/Fraxinus/Corylus* & acidophilous *Quercus* forests; rich-soil scrub; *Salix* swamp, softwood and hardwood alluvial forests; scattered *Quercus*, *Salix* & *Populus* trees; hedges, urban parks; fen carr.

**Adult microsites:** Not indicated.

**Flight Period:** Late September to late November.

**Oviposition site:** In cracks of bark or forks of branches of trees; laid in small irregular rows or batches.

**Larval microsites:** On foliage, or possibly also fruiting bodies of trees, later on foliage of herbs, and in some areas possibly on low shrubs.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Polyphagous on deciduous trees, but mainly on *Quercus* spp., *Fagus sylvatica*, *Populus* and *Crataegus* spp., initially

within spun terminal shoots, later externally at night on the leaves, and finally on various unspecified herbaceous plants or, in the north of its range (in Britain) on *Calluna*. According to Skinner (1998) it also feeds on catkins of *Populus* spp. From April to June, then entering diapause for some weeks in a subterranean cocoon prior to pupation in July. Overwintering as an ovum.

**Effectiveness of different sampling methods:** Adults are attracted to light and sugar, and are also to be found feeding on ivy, overripe fruit and berries (Lorimer, 1983).

**Range:** Widely distributed, and fairly common in some areas, but there are few recent records from the western half of Ireland. In Britain it is widespread in England and Wales, and locally common in the south. It is more local in Scotland, but extends to the Inner Hebrides and Caithness. It is also found on the Isle of Man. Generally distributed over Europe, apart from Albania, also found on Sicily; extending to southern Norway and Finland, and in Sweden to central parts with an isolated record from about 64°N.

**Status:** Local resident.

**Conservation:** The Irish status of this species seems to have undergone little recent change, but lack of late-season trapping data make it difficult to assess in some areas.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Agrotis cinerea*

**Species name:** *Agrotis cinerea* (Denis & Schiffermüller, 1775) (*Noctua*). English name: LIGHT FEATHERED RUSTIC.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *denticulatus* (Haworth, 1803); *tephrina* Staudinger, 1901.

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Agrotis cinerea*).

**Macrohabitats:** On dry calcareous grassland and on coastal grey dunes.

**Adult microsites:** Not indicated in general, but Barrett, quoted in Goater (1979) stated that females were found in abundance after a hot day after nightfall resting on short grass-stems; and females have also occasionally been taken in hot sunshine, running or tumbling over the grass.

**Flight Period:** Probably May and June, as in Britain.

**Oviposition site:** Unknown, but probably in batches on the foodplant.

**Larval microsites:** On hummocks of small forbs; spending the day below ground.

**Food and feeding habitats** (Goater, 1979), (Emmet, 1991): The larva occurs from June until the following March, feeding nocturnally, but is full-fed in autumn, and then overwinters in diapause



in the soil; pupating in a subterranean cocoon in April. On *Thymus polytrichus*; and possibly also on other unspecified small herbaceous plants. Overwintering as a full-grown larva.

**Effectiveness of different sampling methods:** Males come to light and both sexes to sugar, but females are seldom seen (Goater, 1979).

**Range:** Rare and very local. Recorded from Tullylagan, Co. Tyrone in 1897 and Inch, Co. Kerry in 1968; there is also a specimen in the Langham Collection, Ulster Museum, labelled "Malahide, Co. Dublin 15 6 1917". There is also a reference to three specimens taken in Co. Antrim in 1958 (Baynes, 1964); but these are omitted by Thompson & Nelson (2003). In Britain this species is widely scattered, but local, in southern and south-eastern England, extending very locally northwards to North Wales and the English Midlands. Generally distributed over Europe apart from Portugal and European Turkey and the Mediterranean islands; extending north to southern Sweden, but to only the extreme south of Norway and Finland

**Status:** Uncertain, either a very local resident, now extinct, or a rare migrant.

**Conservation:** Impossible to assess.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Agrotis clavis*

**Species name:** *Agrotis clavis* (Hufnagel, 1766) (*Phalaena*). English name: HEART & CLUB.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *corticea* (Denis & Schiffermüller, 1775); *claviger* (Haworth, 1803); *subfuscus* (Haworth, 1803).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Agrotis corticea/clavus (corticea)*).

**Macrohabitats:** Unimproved grassland (calcareous and non-calcareous).

**Adult microsites:** "Rarely encountered by day" (Goater, 1979).

**Flight Period:** Late June to late July.

**Oviposition site:** Not stated.

**Larval microsites:** Below ground on roots of low herbs; initially on the foliage of low herbs; but always spending the day below ground.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Polyphagous, feeding nocturnally on the leaves and roots of a wide range of forbs, including *Chenopodium*, *Polygonum*, *Trifolium*, *Rumex* and *Verbascum* spp. and *Daucus carota*; August to the following May; but in diapause from December onwards in an earthen cell, in which it also pupates.

**Effectiveness of different sampling methods:** Appears to come fairly regularly to light; Goater (1979) reports that it comes freely to light, and is attracted to flowers such as lime, privet and red valerian.

**Range:** Scarce and local. There are scattered old records from many parts of the country, from Cork and Kerry to the north coast, but it has not been recorded from Northern Ireland (Co. Down) since 1978 and the only recent records on the *Irish Noctuidae Database* are five specimens found at Keekill, near the eastern shore of Lough Corrib, Co. Galway in 2003. It is much more widespread in Britain, being fairly common in Southeast England, becoming more local northwards and westwards, extending locally to southern and eastern Scotland as far as Sutherland. Generally distributed over mainland Europe apart from Portugal and Albania, but also recorded from Corsica; extending north to about 64°N in Norway, but to beyond the Arctic Circle in Sweden and Finland.

**Status:** Very local resident.

**Conservation:** The Irish status of this very local species should be investigated.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Agrotis exclamationis*

**Species name:** *Agrotis exclamationis* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English name: HEART & DART.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *picea* (Haworth, 1809); *plaga* Stephens, 1835.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Agrotis exclamationis*).

**Macrohabitats:** Dry grassland, coastal grey dunes and machair, culture macrohabitats and Atlantic and scrub saltmarsh.

**Adult microsites:** Not indicated, but "rests concealed by day" (Goater, 1979).

**Flight Period:** From late May to mid-August, but occasionally also in early May, and in some years such as 2002, continuing on the wing until early September. Mid-May to late July in Britain, where occasional, generally smaller specimens have been noted in September, while in parts of southern Europe a second generation is usual (Goater, 1979).

**Oviposition site:** Not known.

**Larval microsites:** On roots of low herbs; inactive by day in the soil.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Subterranean, on a wide range of forbs, such as *Rumex*, *Chenopodium* and *Plantago* spp. also on cultivated ones; August to

April, but in diapause from November onwards; overwintering underground in an earthen cell, where it pupates in the spring.

**Effectiveness of different sampling methods:** Comes in large numbers to light-traps, and also, according to Goater (1979) to sugar in abundance, and to flowers.

**Range:** Common to abundant over much of Ireland; but especially in agricultural areas of the east, midlands and south. There is, however, evidence from the *Irish Noctuidae Database* that it was much more abundant in the mid-1970's to mid 1980's, when over 300 were caught in one night in a mercury-vapour on several occasions; compared with about 10% of that number by 2000-2005. Common to abundant over England, Wales and the Isle of Man, but local and much less common in Scotland where it extends to the north of the mainland and the Outer Hebrides. Generally distributed over Europe, extending north to southern Norway and around the Gulf of Bothnia in Sweden and Finland.

**Status:** Common resident, but with recent sharp decline in abundance.

**Conservation:** This species remains of no conservation concern in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Agrotis ipsilon*

**Species name:** *Agrotis ipsilon* (Hufnagel, 1766) (*Phalaena*). English name: DARK SWORD-GRASS.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *ypsilon* misspelling; *suffusa* (Denis & Schiffermüller, 1775); *spinula* (Esper, 1786), nec (Denis & Schiffermüller, 1775); *spinifera* (Villers, 1789); *spinula* (Donovan, 1801, partim, fig. 2), nec (Denis & Schiffermüller, 1775).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Agrotis suffusa/ipsilon(suffusa)*).

**Macrohabitats:** Unimproved dry calcareous grassland; coastal grey dunes; fallow land & field margins.

**Adult microsites:** Below ground, on stem-bases and in the root zone.

**Flight Period:** Mainly from about June to October, but most numerous about August; but according to Bretherton (1979) the adult can be found in flight any month of the year.

**Oviposition site:** Not known in the wild, but Bretherton (1979) reports moths in captivity laying at random on foliage or muslin.

**Larval microsites:** In the root-zone, on stem-bases of low herbs; inactive in the soil by day.

**Food and feeding habitats** (Bretherton, 1979); (Emmet, 1991); (Skinner, 1998): Probably feeding nocturnally on the roots and stem-bases of a wide range of forbs, but there is no proof of its having

bred in Britain or Ireland, and its overwintering stage, if any, remains unknown. Summer adults produce larvae that feed in August and September and then pupate in a subterranean cocoon.

**Effectiveness of different sampling methods:** The adult is regularly taken in light-traps.

**Range:** The moth can be found throughout Ireland in years of good migration; but is found mainly on and near coasts of the south, east and west. It is also found throughout Britain, but is commonest in the south and southeast. It is found throughout Europe, from Turkey to central Fennoscandia, and has also been reported from Iceland.

**Status:** Migrant, common in some years.

**Conservation:** No conservation concern.

**Compiler:** K. G. M. Bond. Date of compilation: 21<sup>st</sup> December 2005.

### *Agrotis puta*

**Species name:** *Agrotis puta* (Hübner, 1803) (*Noctua*). English name: SHUTTLE-SHAPED DART.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *radius* (Haworth, 1803); *radiola* Stephens, 1829.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Agrotis puta*).

**Macrohabitats:** Dry calcareous grassland.

**Adult microsites:** "Rests concealed by day" (Goater, 1979).

**Flight Period:** Insufficient data; in Britain the species flies in about three generations from spring to autumn.

**Oviposition site:** Not known in the wild.

**Larval microsites:** In the root zone; on stem bases.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Polyphagous on the roots and stem-bases of various forbs, including *Rumex* spp., *Taraxacum* spp., *Polygonum* spp. and *Lactuca* spp.; feeding at any time in the period late May to early March of the following year, probably in two or three generation. Overwintering in the larval stage, or possibly sometimes in the pupal (Emmet, 1991); pupating in a subterranean cocoon.

**Effectiveness of different sampling methods:** Visits flower and sugar at night, also come commonly to light (Goater, 1979).

**Range:** Rare, (INJ MIGRANT REPORT 21: 505, FOUNTAINSTOWN) and possibly only migrant. Has been reliably recorded from only Cos Cork, Down and Fermanagh. In Britain it is common in the south, becoming more local northwards, extending to Lancashire and Yorkshire. There is also a record from the Isle of Man. In Europe this species has a southern distribution, from the Mediterranean northwards to France, and very locally to Belgium and southern Germany; it also occurs from

Austria and Hungary south-eastwards through the Balkans, and there are isolated records from Denmark and Poland.

**Status:** Very local resident, probably now extinct, or a rare migrant.

**Conservation:** Impossible to assess.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Agrotis ripae*

**Species name:** *Agrotis ripae* (Hübner, 1823) (*Noctua*). English name: SAND DART.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *nebulosa* Stephens, 1829.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Agrotis ripae*).

**Macrohabitats:** Coastal beaches (*Ammophila*).

**Adult microsites:** Can be found by night resting on sand or feeding at the flowers of marram and lyme-grass (Goater, 1979).

**Flight Period:** Probably as in Britain, for which Goater (1979) gives mid-June to mid-July.

**Oviposition site:** Not stated.

**Larval microsites:** On low growing forbs; inactive by day in the soil.

**Food and feeding habitats** (Goater, 1979), (Emmet, 1991): Feeding nocturnally on a range of sandhill plants, including *Salsola kali*, *Cakile maritima* and *Atriplex* spp.; August to April, but feeding only until autumn; then overwintering underground in the sand in larval diapause; pupating there without cocoon in May.

**Effectiveness of different sampling methods:** Comes plentifully to light, also found on flowers and at sugar (Goater, 1979).

**Range:** Found locally on sandy coasts of the south and east from co. Dublin to Co. Kerry. There are few recent records. It occurs on the coasts of England and Wales, also on the east coast of Scotland between about Edinburgh and Aberdeen. Local on coasts of western Europe from Portugal to Latvia and Lithuania; and in Fennoscandia found only in southern Sweden and the extreme south of Norway. The species has also been reported from the Czech Republic.

**Status:** Local resident.

**Conservation:** This species is vulnerable to loss of sand-dune habitat due to golf course construction, mobile homes, etc.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

*Agrotis segetum*

**Species name:** *Agrotis segetum* (Denis & Schiffermüller, 1775) (*Noctua*). English name: TURNIP MOTH.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *spinula* sensu Donovan, 1801, partim; *catenatus* (Haworth, 1803); *pectinatus* (Haworth, 1803); *monileus* (Haworth, 1803); *connexus* (Haworth, 1803); *corticea* sensu Haworth, 1803; *corticcus* misspelling; *subatratus* (Haworth, 1803); *nigricornatus* (Haworth, 1803).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Agrotis segetum*).

**Macrohabitats:** On crops (gen.) & fallow land.

**Adult microsites:** Not indicated, but "seldom seen by day" (Goater 1979).

**Flight Period:** From the end of May to about mid-July, and again from about mid-August to mid-October. During the cooler summers of the 1970s adults were also recorded in late July and August, probably indicating delayed emergence. According to Goater (1979) there is sometimes a small second generation in September and October in Britain.

**Oviposition site:** Laid in small clumps on roots of forbs.

**Larval microsites:** Below ground on roots and stem bases. Inactive by day in the soil.

**Food and feeding habitats** (Goater, 1979), (Emmet, 1991); (Skinner, 1998): Subterranean, feeding nocturnally on the roots of *Brassica rapa* (turnip), beet, swede and carrot, and other garden plants and herbs, sometimes being very destructive. October to March and June-July; larvae that hatch during the summer feed through the winter, but it is not known at which stage the progeny of autumn moths spend the winter (Goater, 1979). Pupating in April and July in a subterranean cocoon.

**Effectiveness of different sampling methods:** Regularly found in light-traps. According to Goater (1979) it also comes to flowers and sugar.

**Range:** Widely distributed and fairly common in many areas; but it appears to be absent from Donegal and other western parts of Ulster, and according to Thompson & Nelson (2003), there has been a decline in some areas in recent years. This species is common over much of England and Wales, becoming more local northwards, while in Scotland it is local, with isolated colonies as far north as Caithness and the Inner Hebrides. Generally distributed over the whole of southern and central Europe, extending north to southern Norway and southern and central Sweden and Finland.

**Status:** Resident.

**Conservation:** Of no conservation concern in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

*Agrotis trux*

**Species name:** *Agrotis trux lunigera* Stephens, 1829 [*trux trux* (Hübner, 1824)] (*Noctua*). English name: CRESCENT DART.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: British and Irish specimens are described as subsp. *lunigera*. According to Goater (1979) the nominate subsp. is "very different [from subsp. *lunigera*] and, unlike the British subsp., extremely variable".

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Agrotis lunigera/trux (lunigera)*).

**Macrohabitats:** Vegetated sea-cliffs.

**Adult microsites:** Not indicated.

**Flight Period:** From the end of June to about mid-August; in Britain in July and August (Goater, 1979, Emmet, 1991).

**Oviposition site:** Not known in the wild.

**Larval microsites:** Not known, but probably on the roots of low-growing plants.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): The precise foodplants are unknown, but it is generally believed to feed on *Taraxacum* agg., *Plantago* spp. and *Polygonum aviculare* on and near sea-cliffs; overwintering as a full-grown larva; probably pupating in the soil in spring (see Goater, 1979).

**Effectiveness of different sampling methods:** Found regularly at light-traps; it also comes to sugar and to thistle and knapweed heads when this is applied to them (Goater, 1979).

**Range:** Found on sea-cliffs at Copeland Island, Co. Down, and thence southwards from Howth, Co. Dublin and along the south coast. Also found in the Dingle Peninsula, Co. Kerry, and recently discovered at Loop Head and Kilcreadaun Point, West Clare as well as on Clare Island, Co. Mayo. Found locally on sea-cliffs around England and Wales, from Kent to Cornwall and thence northwards to Lancashire, also on the Isle of Man. There is also an isolated record from Findhorn, northeast Scotland. The nominate form extends along the coasts of western Europe in Iberia and France; it also occurs in the Pyrenees, Switzerland and Austria, as well as more generally in the Mediterranean and Balkans, with an isolated record from Poland.

**Status:** Very local resident.

**Conservation:** This species and its sea-cliff habitat are in general not under threat.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

*Agrotis vestigialis*

**Species name:** *Agrotis vestigialis* (Hufnagel, 1766) (*Phalaena*). English name: ARCHER'S DART.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *valligera* (Denis & Schiffermüller, 1775); *clavis* (Donovan, 1801); *sagittiferus* (Haworth, 1803).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Agrotis vestigialis (valligera)*) (*valligera (vestigialis)*).

**Macrohabitats:** Coastal grey dunes and machair.

**Adult microsites:** Generally concealed by day, but sometimes occurs on flowers, or flies diurnally. Adults have been recorded singly by day on ragwort and sea buckthorn on the Dublin coast.

**Flight Period:** Early July to early or mid-September. Emmet (1991) also includes late June for Britain.

**Oviposition site:** Unknown.

**Larval microsites:** On low-growing plants of the herb layer; spending the day dormant in the soil.

**Food and feeding habitats** (Goater, 1979), (Emmet, 1991): Feeds at night from September to the following May on various small herbaceous plants and grasses, of which Goater (1979) specifically mentions *Galium* and *Stellaria* spp. It spends the winter in the larval stage, feeding in milder weather; pupating in a subterranean cocoon in June.

**Effectiveness of different sampling methods:** Attracted to light-traps, sometimes in large numbers. It can also be found by day on sand-dune flowers, and according to Goater (1979) it occasionally flies diurnally, and also comes to sugar.

**Range:** Widely distributed around the Irish coast on sand-dune systems. There are a few historical inland records from widely separated localities. In Britain this species is widely distributed around the coast, also extending to the Outer Hebrides, Orkney and the Isle of Man. It also occurs locally inland on light, sandy soils and heaths (Goater, 1979). Generally distributed over southern and central Europe, apart from Albania, European Turkey and some of the Mediterranean islands; extending to southern and central Norway, northern Sweden and to about 68°N in Finland.

**Status:** Local resident.

**Conservation:** Although it is more widespread than its congener, *A. ripae*, this species too is vulnerable to loss of sand-dune habitat.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.



*Allophyes oxyacanthae*

**Species name:** *Allophyes oxyacanthae* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English name: GREEN-BRINDLED CRESCENT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Miselia/Allophyes oxyacanthae*).

**Macrohabitats:** Rich-soil scrub; hedges, orchards, urban parks and ornamental gardens;

**Adult microsites:** Not indicated.

**Flight Period:** From the end of September to the end of October, but according to Lorimer (1983) it may also be seen "throughout November" (in Britain).

**Oviposition site:** On tree-trunks; in small clusters.

**Larval microsites:** On trees; in and on the foliage.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds on the buds and later on the foliage of various Rosaceae, especially *Crataegus* spp., and *Prunus spinosa*, but also on *Prunus avium* and *Cotoneaster* spp. and *Sorbus aucuparia*; Skinner (1998) also includes *Betula*, *Salix* and *Malus* spp. March to late May or June, after which the larva enters diapause in a strong underground cocoon before pupating in July. Overwintering as an ovum.

**Effectiveness of different sampling methods:** Found regularly at mercury-vapour light-traps and other light sources; also reported by Lorimer (1983) to be attracted to ivy-blossom, overripe fruit and sugar.

**Range:** Widely distributed over most of Ireland, but somewhat local and found mainly in wooded areas. Generally distributed in wooded areas of Britain and the Isle of Man, and common in many districts. Generally distributed over central and southern Europe apart from Iberia, and extending to Corsica and Greece; in Fennoscandia northwards to about 62°N.

**Status:** Somewhat local resident.

**Conservation:** This species does not appear to under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

*Amphipoea crinanensis*

**Species name:** *Amphipoea crinanensis* (Burrows, 1908) (*Hydroecia*). English name: CRINAN EAR.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). It is, however, generally considered necessary to examine the terminalia in order to separate *A. crinanensis* from the other Irish members of the genus. If the males are set with the valvae well separated, it may be possible to identify them without dissection and, according to Goater (1983); the underside markings are also a guide to identification. The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Hydroecia/Hydraecia crinanensis*); but only the male terminalia are illustrated in Goater (1983).

**Macrohabitats:** Humid/flooded eutrophic grassland; transition mire & marsh and tall-herb swamp.

**Adult microsites.** Little is known about these, but the adults probably conceal themselves by day in grass tussocks.

**Flight Period:** In Ireland throughout August, continuing to early September. Goater (1983) indicates August and September for Britain.

**Oviposition site:** Not described, but the ova are probably inserted into the stems of the foodplant.

**Larval microsite:** On tall, strong herb layer plants; in the stems.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds in the stems of *Iris pseudacorus* (Goater, 1983), (Emmet, 1991); Skinner (1998) adds "and probably other plants"; from May to July. Later in July it pupates in a cocoon in detritus (Emmet, 1991). Overwintering as an ovum.

**Effectiveness of different sampling methods:** Adults have been found on several occasions at both Actinic and Mercury-vapour light-traps; they are also occasionally found by day on flowers.

**Range:** Widespread over Ireland, and apparently common in Donegal. There are, however, very few records from the midlands and southeast. In Britain it has a northern and western distribution, being found in Wales, northern England northwest of a line from the Ribble to the Tees, and Scotland where it extends to Sutherland and the Inner Hebrides; also in the Isle of Man. In continental Europe it is restricted to Fennoscandia, where it is very local; and Latvia, Estonia and northernmost Germany.

**Status:** Resident.

**Conservation:** There appear to be no overall threats to this species in Ireland, although further drainage of wetlands for forestry of agricultural improvement is likely to decrease its distribution.

**Compiler:** K.G.M. Bond. Date of compilation: 18<sup>th</sup> November 2004.

### *Amphipoea fucosa*

**Species name:** *Amphipoea fucosa paludis* Tutt, 1888 [*fucosa fucosa* (Freyer, 1830)] (*Apamea*). English name: SALTERN EAR.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** None.

**Subspecific status:** British and Irish specimens are referable to subsp. *paludis* Tutt, which is also recorded from the coasts of continental Europe from Normandy to the Netherlands and Denmark; while the nominal form is found inland from Belgium to central Scandinavia and Finland (Bretherton, 1983). The forewing of *paludis* is described as relatively longer and narrower than in the typical form (Goater, 1983).

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998), but examination of the genitalia is recommended for determination. The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Hydroecia/Hydraecia paludis*); but only the male terminalia are illustrated in Goater (1983). This species is morphologically very close to *A. lucens*, but the browner, more ochreous forewing and its saltmarsh habitat can usually be helpful in distinguishing the two. As the terminalia of these are so similar, it is necessary to examine the terminalia of both sexes under high magnification.

**Macrohabitats:** Atlantic saltmarsh in Ireland. (In parts of southeast England it is also found locally inland).

**Adult microsites:** At night may be found on the flowers of rushes, marram (*Ammophila arenaria*) and ragwort (*Senecio jacobaeae*) but by day it is probably usually concealed at the bases of grass tussocks in saltmarshes (Goater, 1983).

**Flight Period:** In Ireland late July to late August. Goater (1983) gives August and September for Britain.

**Oviposition site:** Not known, but is probably inserted into a stem of the foodplant.

**Larval microsites** (Skinner, 1998): On low-growing plants of the herb layer.

**Food and feeding habitats** (Goater, 1983); (Koch, 1984); (Emmet, 1991); (Skinner, 1998): The larva feeds on various grasses, the only one specifically mentioned by Emmet (1991) and Skinner (1998) is *Poa annua*, but in Ireland it likely to be one or more saltmarsh grasses; May to July. It pupates later in July in a cocoon in detritus. Another author gives "grasses and low plants" (Koch, 1984), while Goater (1983) describes the life history as "not fully described". Overwintering as an ovum.

**Effectiveness of different sampling methods:** All known Irish specimens have been found at light-traps, both Actinic and Mercury-vapour.

**Range:** In Ireland known only from a few coastal sites in the south and southeast; but may well have been overlooked on other parts of the coast. Although "Sligo" is indicated as a type locality for *A. fucosa paludis* in (Goater, 1983), its occurrence there has not been confirmed during the present study. In Britain it is also coastal, extending northwards to the Outer Hebrides; but it also occurs very locally inland in southeast England. It is recorded from all Central and Northern European countries, northwards to central Scandinavia and Finland. It has been recorded from Southern Europe apart from Iberia, the Mediterranean islands, Albania, Greece, and Turkey.

**Status:** Local resident.

**Conservation:** This species is threatened mainly by the loss of saltmarsh due to construction of roads and embankments.

**Compiler:** K.G.M. Bond. Date of compilation: 18<sup>th</sup> November 2004.

*Amphipoea lucens*

**Species name:** *Amphipoea lucens* (Freyer, 1845) (*Apamea*). English name: LARGE EAR.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998), but examination of the genitalia is recommended for determination. The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Hydroecia/Hydraecia lucens*); but only the male terminalia are illustrated in Goater (1983).

**Macrohabitats:** Oligotrophic humid grassland (gen.) and oligotrophic humid *Molinia* grassland; transition mire, blanket bog & cutover bog.

**Adult microsites:** Probably usually concealed in tussocks and bases of grasses by day, but occasionally also found on flowers.

**Flight Period:** Early August to late September.

**Oviposition site:** Not indicated, but it is probably inserted into the roots and stem-bases of the foodplant.

**Larval microsites:** In tussocks of grasses.

**Food and feeding habitats** (Goater, 1983; Emmet, 1991; Skinner, 1998): On *Molinia caerulea* and probably other grasses, feeding on the roots and lower parts of the haulms at night. May to early July, pupating in a cocoon in detritus. Overwintering as an ovum.

**Effectiveness of different sampling methods:** The great majority of Irish records have been from light-traps, including UV light; the adult has occasionally been found by day, and at Malaise trap.

**Range:** Widespread over Ireland, but apparently scarce in the east. Unlike *A. crinanensis*, it appears to be common on some midland raised bogs. In Britain it has a northern and western distribution, occurring northwest of a line from South Wales to the central Pennines and Teesside. It is generally distributed over much of Northern Europe, but is absent from Southern Europe, apart from France, where it was discovered in Doubs as recently as 1975.

**Status:** Resident.

**Conservation:** Apart from negative effects of further loss of raised bog habitat, the species does not appear to be under serious threat in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 18<sup>th</sup> November 2004.

*Amphipoea oculea*

**Species name:** *Amphipoea oculea* (Linnaeus, 1761) (*Phalaena* (*Noctua*)). English name: EAR MOTH.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *nictitans* (Linnaeus, 1767); *?auricula* (Donovan, 1807); *?erythrostigma* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998), but examination of the genitalia is recommended for determination. The male and female terminalia are illustrated in Pierce (1909, 1942) (as *Hydroecia/Hydraecia nictitans*); but only the male terminalia are illustrated in Goater (1983).

**Macrohabitats** Dry calcareous unimproved grassland, coastal grey dunes and dune-slacks.

**Adult microsites** (Skinner, 1998): The adults visit flowers of thistle, ragwort (*Senecio jacobaeae*) and various rushes (*Juncus* spp.) by day; they also visit these at night, however, it is likely that they normally spend the day concealed in the tussocks of grasses.

**Flight Period:** In Ireland recorded from late July to the end of August. Skinner (1998) gives late July to September for British specimens.

**Oviposition site:** Probably inserted into the tissue of the stem-bases of the foodplant.

**Larval microsites:** On herb layer tussocks and low-growing plants of the herb layer.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): In the stems-bases and roots of various grass, especially *Deschampsia cespitosa*, but also those of *Petasites hybridus* and other herbaceous plants, April to June, when it pupates in a subterranean cocoon. Goater (1983) quoting Beck (1960) mentions that it has been reared from the egg on *Agropyron* spp. and *Dactylis glomerata*. Overwintering as an ovum.

**Effectiveness of different sampling methods:** The majority of records on the *Irish Noctuidae Database* are from Mercury-vapour traps, or from other unspecified types of light-trap, but the adult has also been found by day.

**Range:** Although described as "common and widely distributed" in Ireland (Baynes 1970; Goater, 1983); Baynes later (1970) later modified this statement by adding, "further experience is needed before the frequency of this moth can be stated with confidence". Confirmed records, largely based on recently dissected material indicate a mainly southern and eastern coastal distribution. It was not recorded from the Burren by Bradley & Pelham-Clinton (1967), although they recorded both *A. crinanensis* and *A. lucens* there; however, the species was recorded from the Burren by Richardson (1952), and a specimen was found at Lough Bunny in the south-eastern Burren in 1996. Further work is needed to determine its true status in the northern half of Ireland. Widespread in Britain and common in southern England, extending northwards to the Outer Hebrides and Orkney. It is recorded throughout continental Europe northwards to central Fennoscandia, apart from Albania, Greece and Turkey; and it is absent from the Mediterranean islands.

**Status:** Resident.

**Conservation:** In view of the uncertainty about its true status in Ireland, it is difficult to assess the possible threats to this species, but further loss of unimproved grassland is likely to have a negative effect.

**Compiler:** K.G.M. Bond. Date of compilation: 19<sup>th</sup> November 2004.

*Amphipyra pyramidea*

**Species name:** *Amphipyra pyramidea* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English name: COPPER UNDERWING.

**Nomenclature:** Amphipyrinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The separation of this species and *A. berbera* Rungs, 1949 is discussed by Heath (1971a). The terminalia are illustrated in Pierce (1909, 1942) (as *Amphipyra pyramidea*), Fletcher (1968), Heath (1971a) and Goater (1983); but as pointed out by Craik (1980, 1984), the illustrations of the female terminalia by these authors combined with lack of descriptive text are inadequate for separating this species from the more recently recognised *A. berbera svenssoni* Fletcher 1968. Differences between the larvae of *A. pyramidea* and *A. berbera svenssoni* are described in Craik (1980) and Henwood (1980).

**Macrohabitats:** *Quercus*/*Fraxinus*/*Corylus*; acidophilous *Quercus* and alluvial hardwood forest; scattered *Quercus* trees; urban parks.

**Adult microsites:** By day concealed in old sheds and hollow trees, often roosting communally (Goater, 1983).

**Flight Period:** From early August to early October.

**Oviposition site:** Not stated.

**Larval microsites:** On trees and shrubs/saplings; on the foliage.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Polyphagous on deciduous, but primarily on *Quercus* spp., also reported from *Carpinus betulus*, *Lonicera periclymenum*, *Fraxinus excelsior* and *Ligustrum vulgare*; feeding on the foliage in April-May, and pupating in a subterranean cocoon early in June; overwintering as an ovum.

**Effectiveness of different sampling methods:** The adults sometimes come to light, but they are reported to be more strongly attracted to sugar, and overripe or rotting fruit (Goater, 1983).

**Range:** Local, but widely distributed; found mainly in well-wooded localities. It is fairly common in north Armagh and parts of Co. Down, but much scarcer further north (Thompson & Nelson, 2003). In Britain this species is widely distributed and often common in woodland south of a line from North Wales to Humberside; further north in England and in the Isle of Man the species is very locally scattered, and in Scotland it is rare and known from only a few well scattered sites in

the south and east. Generally distributed over Europe, extending to southern and parts of central Fennoscandia; also on most of the Mediterranean islands.

**Status:** Local resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 8<sup>th</sup> February 2006.

### *Amphipyra tragopoginis*

**Species name:** *Amphipyra tragopoginis* (Clerck, 1759) ([*Phalaena*]). English name: MOUSE MOTH.

**Nomenclature:** Amphipyrinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *tragopogonis* misspelling; *luciola* (Hufnagel, 1766); *tetra* sensu Haworth, 1809.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Amphipyra tragopogonis*).

**Macrohabitats:** Rich-soil scrub; scattered *Salix* trees, tall-herb forest clearings; coastal dune scrub; field margins, hedges and urban parks; fen carr.

**Adult microsites:** Roosts by day in dark corners of hollow trees and wooden buildings, often in numbers (Goater, 1983).

**Flight Period:** Late July to the beginning of October.

**Oviposition site:** Not indicated.

**Larval microsites:** On deciduous trees and shrubs, and on forbs; on the foliage and flowers.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally from April to June or July on the leaves and flowers of a wide variety of shrubs and forbs, especially *Salix* and *Crataegus* spp., also on *Fragaria x ananassa*, as well as on various other cultivated plants; pupating in July in a cocoon among leaves or below ground. Overwintering as an ovum.

**Effectiveness of different sampling methods:** The adults are attracted to light-traps, but they can also be found after dark at flowers, sugar and honey-dew.

**Range:** Fairly common in many areas such as south and west Munster, parts of the east and northeast; elsewhere it appears to be local and largely coastal. Generally distributed and common in many places over the British Mainland, extending to the Outer Hebrides and also occurring on the Isle of Man. Generally distributed over Europe, apart from Portugal and Crete, extending to beyond the Arctic Circle in Sweden and Finland, but only to near Trondheim in Norway.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 8<sup>th</sup> February 2006.

***Anaplectoides prasina***

**Species name:** *Anaplectoides prasina* (Denis & Schiffermüller, 1775) (*Noctua*). English name: GREEN ARCHES.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *herbida* (Denis & Schiffermüller, 1775); *mixta* (Haworth, 1809).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Aplecta herbida (prasina)/Anaplectoides prasina (herbida)*).

**Macrohabitats:** On scattered *Salix*; in tall-herb and grassy forest clearings.

**Adult microsites:** Rests concealed by day, or sometimes on tree trunks (Goater, 1979).

**Flight Period:** Mid-June to about the end of July.

**Oviposition site:** Unknown.

**Larval microsites:** On low-growing plants of the herb layer, on lianas and on trees.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeding on the foliage of *Polygonum* and *Rumex* spp., also on *Rubus fruticosus* agg. and *Lonicera* spp.; from autumn until late spring, when it feeds on the opening buds of *Salix* spp. and *Vaccinium myrtillus*; pupating in a subterranean cocoon in May.

**Effectiveness of different sampling methods:** Has been found fairly frequently at light-traps; Goater (1979) also reports that it comes freely to sugar after dark.

**Range:** Found locally, usually in small numbers, over much of Ireland; most common in wooded areas. Widespread in Britain, extending to Caithness and the Inner Hebrides, also in the Isle of Man; but quite local in parts of eastern, central and northern England. Generally distributed over western and central Europe, apart from Portugal; also recorded from Italy, and in the Balkans from Romania, Bulgaria and Greece; extending to about 66°N in Fennoscandia.

**Status:** Local resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.



*Anarta myrtilli*

**Species name:** *Anarta myrtilli* (Linnaeus, 1761) (*Phalaena* (*Noctua*)). English name: BEAUTIFUL YELLOW UNDERWING.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *albirena* sensu Haworth, 1809; *rufescens* Tutt, 1892; *anglica* Culot, 1915.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Anarta myrtilli*).

**Macrohabitats:** Wet heath, dry siliceous heath; raised and blanket bog.

**Adult microsites:** The adult rests on its foodplants, where it is very well camouflaged by day.

**Flight Period:** In Britain from April to August, most frequent in June and July. Emmet (1991) states that it occurs in overlapping broods. Available Irish records are from mid-June to late July.

**Oviposition site:** On leaves of the foodplant; singly or in pairs.

**Larval microsites:** On low shrubs, on the foliage of the terminal shoots.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Although the larva may be found from April to October, it is most often found in July and August (Lorimer, 1979), feeding on *Calluna vulgaris* and *Erica cinerea*, mainly by day. It appears to be capable of passing winter diapause in either the larval or pupal phase. It pupates, probably about November, in a cocoon in leaf litter at or slightly below the ground surface.

**Effectiveness of different sampling methods:** The adult can be found flying by day over the heather. According to Bretherton, quoted by Lorimer (1979), a night flight is recorded occasionally.

**Range:** Although Baynes (1964) described this species as being "abundant on moorlands from north to south", there are very few recent records to support this, apart from North Armagh, where the species is common on Peatlands complex (Thompson & Nelson, 2003). There are scattered records from Midlands raised bogs in the 1980's, and a few others from the northwest, west and southwest. In Britain the species is found on acid moorland as far north as Orkney, also occurring on the Inner Hebrides. Generally distributed it suitable habitat over western Europe, extending in the Balkans to Bulgaria and former Yugoslavia, absent from the Mediterranean islands; In Fennoscandia extending almost to the northern extremity, but local in much of Norway and the far north.

**Status:** Local resident.

**Conservation:** There are strong indications that this species is in decline in Ireland, and loss of heathland due to drainage of bogs is clearly one likely cause.

**Compiler:** Date of compilation:

*Antitype chi*

**Species name:** *Antitype chi* (Linnaeus, 1761) (*Phalaena (Noctua)*). English name: GREY CHI.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *olivacea* (Stephens, 1831); *suffusa* (Robson, 1891); *nigrescens* (Tutt, 1902).

Subspecific status: None; but considerable local variation occurs; specimens from Co. Clare [probably the Burren] are described as distinctively blue-grey in colour (Lorimer, 1983), but others from Ennis, Co. Clare and cos Galway and Limerick are fairly typical.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Polia/Antitype chi*).

**Macrohabitats:** Rich-soil scrub; dry siliceous and calcareous heath.

**Adult microsites:** Rests by day on rocks and walls, but not in such a way as to be protected cryptically (Lorimer, 1983).

**Flight Period:** Mid-August to late September.

**Oviposition site:** Not stated, the ova are laid singly (Lorimer, 1983).

**Larval microsites:** On herbs and deciduous shrubs, on the foliage.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Polyphagous on herbaceous plants and deciduous shrubs of many families, feeding on the flowers as well as the foliage; Lorimer (1983) and Emmet (1991) list in particular *Sedum acre*, *Armeria maritima* and *Centranthus ruber*; March to June or July, pupating in a subterranean cocoon in July, overwintering as an ovum.

**Effectiveness of different sampling methods:** The moth comes to sugar and light, but is apparently not greatly attracted to natural foods (Lorimer, 1983).

**Range:** Local, and largely confined to northern and western parts of Ireland. Its main centres of distribution seem to be east Ulster, North Donegal and the limestone district of the Burren, Co. Clare and adjacent parts of Co. Galway. In recent years it has also been found near Ennis, Co. Clare, and in the Barrigone limestone district of Co. Limerick. In Britain this species is very scarce and local in the south and east of England, becoming much more generally distributed from mid-Wales, Gloucestershire and the East Midlands northwards, and it widely distributed both inland and on the coast in northern England and Scotland to Caithness and the Inner Hebrides. Widely distributed over nearly all of Europe, largely in limestone areas, but not recorded from Albania, European Turkey and some Mediterranean islands; generally distributed in southern and central Fennoscandia, and extending very locally to about 68°N.

**Status:** Local resident.

**Conservation:** This status of this species in Ireland seems to be secure in most areas.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

*Apamea anceps*

**Species name:** *Apamea anceps* (Denis & Schiffermüller, 1775) (*Noctua*). English name: LARGE NUTMEG.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *sordida* sensu Borkhausen, 1792; *contigua* sensu Haworth, 1809; *infesta* (Ochsenheimer, 1816); *aliena* sensu Stephens, 1829.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Mamestra anceps/sordida*).

**Macrohabitats:** Grassy forest clearings; field margins.

**Adult microsites:** Not known; "rests concealed by day" (Goater (1983).

**Flight Period:** For Ireland there are insufficient data, but for Britain, Goater (1983) gives June and early July.

**Oviposition site:** Not described.

**Larval microsites:** On low-growing herb layer plants, initially on their fruiting bodies.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): At first on the flowers and seeds, then on the leaves of grasses; Emmet (1991) mentions in particular *Poa annua* and *Dactylis glomerata*; in a silky cocoon among grass-roots by day and ascends the grass-tufts to feed nocturnally. Feeding August to April, overwintering as a larva, pupating in May.

**Effectiveness of different sampling methods:** Not known in Ireland, but Goater (1983) reports that it visits flowers and sugar from dusk onwards, and comes to light; it also flies occasionally by day in very hot weather.

**Range:** The only Irish records for this species are from Howth and Malahide, Co. Dublin and Glengarriff Co. Cork, the most recent being as long ago as 1950. In Britain it is found in England and Wales, but is common only in the southeast. It is generally distributed from continental Europe northwards to southern Fennoscandia, but is unknown in Albania and Turkey.

**Status:** Rare resident, possibly extinct.

**Conservation:** As so little is known about the Irish status of this species, or even whether it is still extant here, it is impossible to assess the risks. British sites are on dry grassland and woodland margins, so loss of unimproved grassland is clearly a threat to the species.

**Compiler:** K.G.M. Bond. Date of compilation: 25<sup>th</sup> November 2004.

*Apamea crenata*

**Species name:** *Apamea crenata* (Hufnagel, 1766) (*Phalaena*). English Name: CLOUDED-BORDERED BRINDLE.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *cronata* misspelling; *rurea* (Fabricius, 1775); *alepecurus* (Esper, 1788); *alopecurus* misspelling; *combusta* (Hübner, 1808); *hirticornis* (Haworth, 1812); *borealis* (Curtis, 1829).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). Although it regularly occurs in two main forms (typical and ab. *combusta* Hübner) throughout its range, the forms of this species can be readily identified by wing markings. The terminalia are illustrated in Pierce (1909, 1942) (as *Xylophasia rurea/cronata*).

**Macrohabitats:** Grassy forest clearings; calcareous and non-calcareous grassland; humid/flooded oligotrophic *Molinia* grassland; lightly grazed grassland & hay meadows; coastal grey dunes & machair; fallow land, field margin & urban parks; transition mire & cutover bog.

**Adult microsites:** The moth “rests by day concealed amongst grass and herbage, very occasionally being found on a fence-post” (Goater, 1983).

**Flight Period:** In Ireland from mid-May to early August, but most numerous in late June. Goater gives June and July in Britain.

**Oviposition site:** Uncertain, but moths have been observed ovipositing in inflorescences of cock’s-foot (*Dactylis glomerata*) (Goater, 1983).

**Larval microsites:** On low-growing herb layer plants, initially on their fruiting bodies, later on the foliage.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds at first on the flowers and immature seeds of various grasses, including *Dactylis glomerata*, and later on the leaves of various grasses. Overwintering as a larva, feeding nocturnally, August to April, then pupating in a cocoon in detritus.

**Effectiveness of different sampling methods:** Frequently taken in numbers at, light, especially Mercury-vapour light, but has also been taken at external domestic lights, and has been found frequently at Malaise Traps. Goater (1983) reports that it also comes to sugar and light.

**Range:** Widespread and common over most of Ireland, especially in damp grassland. According to Thompson & Nelson (2003), it is mainly coastal north of Lough Neagh, but it appears to be widespread inland in Donegal. It is common throughout Britain, and in continental Europe it is recorded from all countries except Portugal, Albania and Turkey; extending north as far as the Arctic Circle.

**Status:** Common resident.

**Conservation:** There appear to be no significant threats to this species.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Apamea epomidion*

**Species name:** *Apamea epomidion* (Haworth, 1809) (*Noctua*). English Name: Clouded Brindle.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *charactera* sensu auctt.; *hepatica* sensu auctt.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Xylophasia hepatica*).

**Macrohabitats:** Grassy forest clearings; field margins & urban parks.

**Adult microsites:** Concealed amongst herbage by day.

**Flight Period:** Mid-June to late July.

**Oviposition site:** Not described.

**Larval microsites:** On low-growing herb layer plants, initially on their fruiting bodies.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): On various grasses; Goater (1983) states that like *A. crenata*, it feeds at first on inflorescences and seed, later on grass blades. It feeds nocturnally from August to March, overwintering, and pupating in a cocoon of earth or moss in April.

**Effectiveness of different sampling methods:** Has been found on several occasions, nearly always singly, at Mercury-vapour light-trap; also twice at Malaise Traps. Goater (1983) reports that it feeds on honey-dew at dusk, especially on nettles, and "greedily" at sugar.

**Range:** Widespread throughout Ireland, but local, and almost always in low numbers. Locally common in Britain, but mainly southern, scarce in Scotland. Widespread in Europe, but not recorded from Norway, Finland, Luxembourg, Portugal, Greece and Turkey.

**Status:** Local resident.

**Conservation:** Loss of deciduous woodland, and loss of grassy clearings within woodland would seem to be the main threat to this species in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 25<sup>th</sup> November 2004.

### *Apamea furva*

**Species name:** *Apamea furva* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: THE CONFUSED.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: *britannica* Cockayne, 1950. British and Irish specimens are considered to belong to ssp. *furva*, which Goater (1983) describes as being "smaller, darker, more greyish fuscous, less brown and less well marked than the nominate subspecies in the continent". Heath & Emmet (1983) illustrate an Irish specimen of this form.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Mamestra/Xylophasia furva*). The terminalia of this species and *A. remissa* are illustrated and discussed by Heath (1970).

**Macrohabitats:** Unimproved calcareous grassland; limestone pavement (in Britain it is recorded from a wider range of habitats, including coastal dunes and montane heath, (Skinner, 1998)).

**Adult microsites:** Not known, but “rests concealed by day” (Goater, 1983).

**Flight Period:** For Ireland insufficient data; but Goater (1983) gives July and August as the main flight period in Britain, continuing in September in the north.

**Oviposition site:** Not described.

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): On *Poa trivialis* and *P. nemoralis*; September to the following June, when it pupates loose or in a weak spinning on the soil. The larva spends the day in a small nest-like structure among the roots of grasses, and feeds at night on basal grass stems, where it overwinters.

**Effectiveness of different sampling methods:** In Britain it is reported to come to flowers at night, especially *Centranthus ruber* (red valerian), *Senecio jacobaea* (ragwort), *Thymus* spp. (thyme) and thistles, also to sugar, and to light (Goater, 1983).

**Range:** Scarce and little known in Ireland, recorded from the Burren, from where a distinctive form is reported, this being figured in Goater (1983). It is apparently scarce even in the Burren, as Bradley & Pelham-Clinton (1967) recorded only a single specimen, at Ballynalackan Castle, on 1<sup>st</sup> September 1963. Earlier records were mostly from the northern counties, where the most recent record is from Rathlin Island, Co. Antrim in 1988 (Thompson & Nelson, 2003). In Britain by contrast it much less restricted in distribution, being “not uncommon” in Scotland, Northern England and much of Wales. The nominate form is widespread throughout Europe, but it is primarily montane in Southern Europe.

**Status:** Very local resident.

**Conservation:** As its main habitat seems to be in rocky sites, it appears to be under little threat.

**Compiler:** K.G.M. Bond. Date of compilation: 25<sup>th</sup> November 2004.

### *Apamea lithoxylaea*

**Species name:** *Apamea lithoxylaea* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: LIGHT ARCHES.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *lithoxylea* misspelling.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Xylophasia lithoxylea/Abromias lithoxylaea*).

**Macrohabitats:** Grassy forests clearings; calcareous & non-calcareous dry grassland & hay meadows; coastal grey dunes and machair; fallow land and field margins and urban parks.

**Adult microsites:** Rests by day on fence-posts and palings, but more often concealed amongst vegetation (Goater, 1983).

**Flight Period:** Mid-June to mid-August.

**Oviposition site:** Not indicated; but Goater (1983) states that the ova are laid "in small loose clusters".

**Larval microsites:** On low-growing plants of the herb layer, and in the root zone on grass roots.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Most authors assume that the larva feeds from September until the following May, on the stems and roots of various grasses; where it overwinters; pupating later in May in a subterranean cocoon.

**Effectiveness of different sampling methods:** Frequently found at Mercury-vapour light-trap, sometimes commonly, also at other light sources. It can occasionally be found by day on exposed wooden surfaces (Goater, 1983).

**Range:** Widespread and fairly common over most of Ireland, but it seems to be rather scarce in the northwest. Widespread and fairly common over Britain. It is found throughout mainland Europe, apart from Portugal, Albania and Turkey, but in Fennoscandia it is confined to the extreme south.

**Status:** Resident.

**Conservation:** The main threat to this species is likely to be the loss of unimproved grassland.

**Compiler:** K.G.M. Bond. Date of compilation: 25<sup>th</sup> November 2004.

### *Apamea monoglypha*

**Species name:** *Apamea monoglypha* (Hufnagel, 1766) (*Phalaena* (*Noctua*)). English Name: DARK ARCHES.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *polyodon* Linnaeus, 1761, nec Clerck, 1759.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Polyodon/Abromias monoglypha*).

**Macrohabitats:** Grassy forests clearings; calcareous & non-calcareous dry grassland; lightly-grazed improved grassland & hay meadows; coastal grey dunes, machair & dune slacks; fallow land, field margins & urban parks; transition mires & cutover bogs.

**Adult microsites:** Mostly roosting under cover, but also found on fence-posts, palings or walls (Goater, 1983).

**Flight Period:** In Ireland from about the middle of June to the end of August; the main flight period being late June to the end of July. Occasional specimens found in late September probably belong to a second generation. According to Goater (1983), a second generation sometimes occurs in Britain, in the south at least, in September, October and November.

**Oviposition site:** Not indicated.

**Larval microsites:** Below ground, in the root zone on grass roots; when young possibly also on the fruiting bodies of the low-growing herbs.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): On *Dactylis glomerata* and other grasses, from late August until the following May, when it pupates in a subterranean cocoon. The larva constructs a silken nest-like chamber among the grass-roots, emerging to eat the stem-bases (Goater, 1983). Goater (1983) surmises that the young larva feeds on the flowers and seeds of grasses. Overwintering as a larva.

**Effectiveness of different sampling methods:** The adult is regularly taken at light, especially at Mercury-vapour light-trap, often in large numbers. It is also a regular visitor to sugar, and to flowers such as red valerian (*Centranthus ruber*) (Goater, 1983). It was frequently taken at Malaise Trap in 2002.

**Range:** Common throughout Ireland. Common throughout Britain, and throughout mainland Europe as far north as central Fennoscandia.

**Status:** Abundant resident.

**Conservation:** There appears to be little threat to this species, which continues to be found abundantly at light traps in all areas.

**Compiler:** K.G.M. Bond. Date of compilation: 25<sup>th</sup> November 2004.

### *Apamea oblonga*

**Species name:** *Apamea oblonga* (Haworth, 1809) (*Noctua*). English Name: CRESCENT STRIPED.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *lunulina* (Haworth, 1809); *abjecta* Hübner, 1813; *nigricans* sensu Stephens, 1829; *nigrodistincta* (Turner, 1933)

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Mamestra abjecta*/*Hydraecia oblonga*).

**Macrohabitats:** Atlantic saltmarsh; saltmarsh scrub.

**Adult microsites:** Rests concealed by day (Goater, 1983).

**Flight Period:** Insufficient data for Ireland; for Britain Goater gives late June until August as the flight season.

**Oviposition site:** Not described.

**Larval microsites:** On low-growing plants of the herb layer, and on grass roots.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds at night on the roots and stems of *Puccinellia* spp. and *Festuca rubra* from September to May, then pupating



in a cocoon in detritus. The larva lives in a small chamber among the roots or under stones at the bases of the foodplant, where it also overwinters

**Effectiveness of different sampling methods:** The adult can be found at night visiting the flowers such as thistle, sea-campion (*Silene uniflora*) and rush (*Juncus* spp.) (Goater, 1983), also ragwort (*Senecio jacobaea*) and marram (*Ammophila arenaria*) (Skinner, 1998); it is also attracted to sugar and light.

**Range:** There are no recent Irish records. Baynes (1964) listed old records from Down, Antrim, Louth and Dublin, and a doubtful one from Waterford. In NMI there are specimens labelled "Clogher Head [Co Louth] (Kane)", and one presumably Irish specimen with a green label labelled "Featherstonhaugh". In Britain this is a mainly coastal species, with very few records outside the range Hampshire to East Yorkshire. Elsewhere in Europe, it is found mainly in coastal marshes and dune systems, but has not been recorded from Iberia, Albania or Turkey.

**Status:** Very local resident, possibly extinct.

**Conservation:** This species has not been recorded for many years from Ireland, and may be extinct. Light-trapping on saltmarshes, in particular those on the east coast, should be carried out in an attempt to ascertain if it still occurs. Loss of saltmarsh due to construction and drainage works represent the main threats.

**Compiler:** K.G.M. Bond. Date of compilation: 25<sup>th</sup> November 2004.

### *Apamea ophiogramma*

**Species name:** *Apamea ophiogramma* (Esper, 1793) (*Phalaena* (*Noctua*)). English Name: DOUBLE LOBED.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *biloba* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Crymodes/Hydraecia ophiogramma*).

**Macrohabitats:** Rich fen/fen-sedge beds & fen carr; non-coastal *Phragmites* & and *Schoenoplectus* reedbeds.

**Adult microsites:** Concealed by day, but flying gently among the foodplant after dusk (Goater, 1983).

**Flight Period:** Mid-June to mid-August.

**Oviposition site:** The ova are deposited in rows in the fold of faded leaves of grass, close to the top (Goater, 1983).

**Larval microsites:** On herb layer plants, and in the roots of these.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): On *Phalaris arundinacea* and *Glyceria maxima*, within the stems of grasses, and overwintering there, or according to Barrett

(1897), during the cold of winter leaving the grass-stems to hibernate in the soil and returning to feed in the stem in spring; larval stage from August to May, pupating in June in a cocoon in detritus or the soil.

**Effectiveness of different sampling methods:** The moth has been taken on a number of occasions at Mercury-vapour light-trap, usually singly; and has also been taken at Malaise Trap. It is also reported to come to sugar (Goater, 1983).

**Range:** This is a very local species in Ireland, confined to areas of reedbeds, but widely spread over the country. Widespread but local in Britain northwards to central Scotland; similarly widespread but local over mainland Europe, but not recorded from Portugal or the south-eastern Balkans.

**Status:** Local resident.

**Conservation:** This species is vulnerable to the loss of reedbeds, but there is no evidence of a significant decline on Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 25<sup>th</sup> November 2004.

### *Apamea remissa*

**Species name:** *Apamea remissa* (Hübner, 1809) (*Noctua*). English Name: DUSKY BROCADE.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *obscura* (Haworth, 1809); *gemina* (Hübner, 1813).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). Obscurely marked specimens (*e.g.* f. *obscura*) may be difficult to identify with certainty. The terminalia are illustrated in Pierce (1909, 1942) (as *Apamea gemina/Xylophasia remissa*). The terminalia of this species and *A. furva* are illustrated and discussed by Heath (1970).

**Macrohabitats:** Grassy forest clearings; unimproved dry calcareous and non-calcareous grassland; hay meadows; coastal grey dunes and machair; fallow land, field margins & urban parks.

**Adult microsites:** Resting concealed amongst long grasses and in damp places by day (Goater, 1983).

**Flight Period:** Generally mid-June to late July; but specimens were found in Kerry and West Cork in early August 2002. Goater (1983) gives June and July for Britain.

**Oviposition site:** Not described.

**Larval microsites:** On tall herb layer plants, initially on the fruiting bodies.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Various grasses, especially *Phalaris arundinacea*, feeding at first on the inflorescences and immature seeds, later on the grass blades and stems. It overwinters as a larva, feeding from August to the following March or April, when it pupates in a brittle subterranean earthen cocoon.

**Effectiveness of different sampling methods:** Regularly taken at Mercury-vapour light-trap and other light-traps, often in numbers, and it has also been taken frequently at Malaise Trap. It is reported to be attracted to honey-dew, but less so to sugar (Goater, 1983).

**Range:** This species is widespread over Ireland, and common in many localities. It is also common and widespread over Britain, while in mainland Europe it is generally distributed over Central and Northern Europe to the Arctic Circle. It is much more restricted in Southern Europe, being unknown in Portugal and Turkey

**Status:** Common resident.

**Conservation:** There seems to be little threat to the status of this species in Ireland, although loss of unimproved grassland will be deleterious.

**Compiler:** K.G.M. Bond. Date of compilation: 25<sup>th</sup> November 2004.

### *Apamea scolopacina*

**Species name:** *Apamea scolopacina* (Esper, 1788) (*Phalaena* (*Noctua*)). English Name: SLENDER BRINDLE.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *abbreviata* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Crymodes/Xylophasia scolopacina*).

**Macrohabitats:** Grassy forests clearings/tracksides.

**Adult microsites:** The adult sometimes rests by day among oak leaves, but more often on the ground amongst long grasses (Goater, 1983).

**Flight Period:** The only known Irish specimen was caught on 25 August 2000. Goater (1983) gives July and August for Britain.

**Oviposition site:** Not described.

**Larval microsites:** On low-growing plants of the herb layer, but initially in the plant stems.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Woodland grasses including *Milium effusum*, *Melica uniflora*, *Poa nemoralis* and *Luzula* spp.; (Goater, 1983) also includes *Brachypodium sylvaticum* and *Briza* spp.; initially boring in the stems, later on leaves and flowers (Emmet, 1991), and, according to Goater (1983), it commences by biting off the tip of a leaf and then eating downwards. Overwintering as a larva, feeding September to May; pupating in a subterranean cocoon in June.

**Effectiveness of different sampling methods:** Adults are attracted to light, sugar and flowers, among which Goater (1983) mentions rosebay willow-herb (*Chamerion angustifolium*), bramble (*Rubus fruticosus* agg.), angelica (*Angelica sylvestris*) and ragwort (*Senecio jacobaea*).

**Range:** Only known in Ireland from Rostrevor Oakwood, Co. Down, where it was discovered in 2000. The species is not known to be migratory, and it is almost certain that it has been overlooked until now. It is widespread but somewhat local in Britain northwards to Lancashire and Yorkshire, mainly in woodland. In mainland Europe recorded from all countries apart from the south-eastern Balkans; extending to southern Fennoscandia.

**Status:** Rare resident or possible introduction.

**Conservation:** The species occurs in grassy clearings in woodland, and in view of its extreme rarity, it is very vulnerable to loss of such habitat due to closing of the canopy.

**Compiler:** K.G.M. Bond. Date of compilation: 25<sup>th</sup> November 2004.

### *Apamea sordens*

**Species name:** *Apamea sordens* (Hufnagel, 1766) (*Phalaena*). English Name: RUSTIC SHOULDER-KNOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *basilinea* (Denis & Schiffermüller, 1775).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Apamea basilinea/sordens*).

**Macrohabitats:** Grassy forest clearings; calcareous and non-calcareous dry grassland; lightly grazed improved grassland & hay meadows; coastal grey dunes; field margins & urban parks.

**Adult microsites:** Rests concealed or low down on a fence-post by day (Goater, 1983).

**Flight Period:** Late May to the beginning of July.

**Oviposition site:** In the inflorescences of grasses.

**Larval microsites:** On low-growing herb layer plants, initially on their fruiting bodies.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds at first on the flowers and immature seeds of various grasses, including *Dactylis glomerata*, and later on the leaves of various grasses. It overwinters as a larva feeding nocturnally from August to March, then pupating in a cocoon in detritus or soil.

**Effectiveness of different sampling methods:** The adult is found fairly regularly in small numbers at light, especially Mercury-vapour light-trap. It has so far been detected only once at Malaise Trap. Goater (1983) states that the adult frequents the flowers of grasses and other species, and also honey-dew, and less often, sugar.

**Range:** Widespread and fairly common in many parts, but it seems to be scarcer in much of the north and north-west, and there are very few records from the Midlands, possibly due to lack of recording. It also appears to be much less common in the south than in the east. In Britain it is also widespread and often common, but appears to be less common over South Wales and southwest

England. It is recorded from all continental European countries except Portugal and Turkey, extending north to central Sweden and Finland.

**Status:** Common resident.

**Conservation:** This species seems to be under little threat in Ireland, but relatively few recent records indicate that it may be suffering from a loss of unimproved grassland habitat.

**Compiler:** K.G.M. Bond. Date of compilation: 25<sup>th</sup> November 2004.

### *Apamea sublustris*

**Species name:** *Apamea sublustris* (Esper, 1788) (*Phalaena* (*Noctua*)). English Name: REDDISH LIGHT ARCHES.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). Worn specimens could possibly be confused with the much more widespread *A. lithoxylaea*. The terminalia are illustrated in Pierce (1909, 1942) (as *Xylophasia/Abromias sublustris*).

**Macrohabitats:** Dry calcareous grassland; limestone pavement.

**Adult microsites:** Not reported, "rarely seen by day" (Goater, 1983).

**Flight Period:** The *Irish Noctuidae Database* records are from late June and early July, but Skinner gives June and July for Britain.

**Oviposition site:** Not described.

**Larval microsites:** Probably on low-growing plants of the herb layer.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Feeding on unspecified grasses; the precise feeding site is uncertain, but most authors indicate the roots; from August, through the winter, to the following May, then pupating in a subterranean cocoon.

**Effectiveness of different sampling methods:** Has been taken at Mercury-vapour light-trap; (Goater 1983) states that it comes "freely to light and sugar".

**Range:** Although it appears to have been fairly widespread in the past, with scattered records from the midlands, east and north (Baynes, 1964), the only recent records are from the Burren, the Fermanagh limestone, and once at Frenchpark, Southeast Galway, an area of limestone outcrops. In Britain it is also mainly confined to calcareous sites, becoming very local northwards towards Northern England. Widely distributed throughout mainland Europe, but local and largely confined to limestone and sandy districts.

**Status:** Very local resident.

**Conservation:** In view of its apparent disappearance from parts of the East, North and Midlands, this species appears to be under threat due to loss of unimproved grassland, and especially calcareous grassland.

**Compiler:** K.G.M. Bond. Date of compilation: 25<sup>th</sup> November 2004.

*Apamea unanimitis*

**Species name:** *Apamea unanimitis* (Hübner, 1813) (*Noctua*). English Name: SMALL CLOUDED BRINDLE.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *secalina* sensu Haworth, 1809.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The species somewhat resembles certain forms of *Mesapamea didyma* and *M. secalis*, but its generally larger size and earlier flight season may be useful for identification. The terminalia are illustrated in Pierce (1909, 1942) (as *Apamea unanimitis*).

**Macrohabitats:** Transition mire; reed/tall sedge beds (*Schoenoplectus*).

**Adult microsites:** Hiding amongst marsh vegetation by day (Goater, 1983).

**Flight Period:** Early June to early July.

**Oviposition site:** Not known in the wild, but ova have been deposited on leaves of *Deschampsia cespitosa* (tufted hair-grass) in captivity (Goater, 1983).

**Larval microsites:** On tall herbs of the herb layer.

**Food and feeding habitats** (Goater, 1983); (Koch 1984); (Emmet, 1991); (Skinner, 1998); (Gustafsson, 2004): British authors give *Phalaris arundinacea* (both wild and cultivated varieties of reed canary-grass), also *Carex* spp., but Gustafsson (2004) and Koch (1984) add *Phragmites australis* as an occasional foodplant. Feeding externally on grasses until October; then under loose bark, among grass tussocks, or rotten wood; emerging to wander for a few days in late February or early March. It spends the winter in larval diapause, prior to spring pupation in a cocoon in the soil.

**Effectiveness of different sampling methods:** Attracted to Mercury-vapour light-trap. It has been recorded several times from Malaise Traps. After dark it may also be found on the flowers of grasses and rushes, also coming to honey-dew and sugar (Goater, 1983).

**Range:** Largely confined to the northern half of the country, where it is of local occurrence; it has however, been recorded several times at Kilcolman Wildfowl Reserve, Co. Cork. Fairly widespread in damper areas in England and Wales, extending very locally northwards to North Uist and Aberdeenshire in Scotland. Widely distributed over most of Europe, but scarce in many countries and extending only to southernmost Scandinavia.

**Status:** Local resident.

**Conservation:** This species is threatened by loss of wetlands, especially in the more southerly and easterly parts of its range; very few recent records come from Eastern Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 25<sup>th</sup> November 2004.

*Aporophyla australis*

**Species name:** *Aporophyla australis pascuea* (Humphreys & Westwood, 1843) [*australis australis* (Boisduval, 1829)] (*Xylena*). English Name: FEATHERED BRINDLE.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *signifera* sensu Humphreys & Westwood, 1843; *britannica* Staudinger, 1869.

Subspecific status: The form found in British and Ireland has been named subsp. *pascuea* (Humphreys & Westwood, 1843), which is characterised by “exceptionally pale ground colour and strongly contrasting markings . . . the most clearly patterned of a very variable species” (Lorimer, 1983).

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Aporophyla australis*).

**Macrohabitats:** Vegetated sea-cliffs.

**Adult microsites:** Hiding by day, but can be found clinging to grass stems from about an hour after dusk (Lorimer, 1983).

**Flight Period:** Irish data are insufficient for generalisation. Goater gives September and early October in Britain.

**Oviposition site:** Not known.

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): On *Silene uniflora*, *Teucrium scorodina*, *Rumex* spp. and other low plants and grasses. Lorimer (1983) also includes *Cichorium intybus* and *Stellaria media*. In overwinters in the larval stage, feeding nocturnally from October to April, pupating in May. The pupation site is not indicated.

**Effectiveness of different sampling methods:** According to Lorimer (1983), the moth comes to sugar, and “from about 22:30 hrs, to light”.

**Range:** This species has been recorded only from coastal sites in counties Waterford, Wexford and Wicklow, there is also a specimen labelled “Howth” (Co. Dublin), in NMI. None of these records is recent, and there is the possibility that the species is now extinct in Ireland. In Britain it is confined the coasts of south and southeast England, but occurs locally further inland in East Kent. Found locally on coasts of western and southern Europe, extending from the mouth of the Schelde (Netherlands), where it is represented by subspecies *zeelandica* Lempke, to Turkey. The nominate subspecies occurs on the west coast of France, and on Mediterranean coasts, while various other subspecies occur in Corsica, Sardinia and the Balkans.

**Status:** Very scarce resident, possibly extinct.

**Conservation:** Efforts should be made to determine whether this species still occurs in Ireland. It flies late in the year (August-October), and light-trapping should therefore be carried out in coastal sites of the south-east at this season. Developments such as caravan parks and golf courses, which lead to losses of coastal grassland, are clearly a threat to species such as this.

**Compiler:** K.G.M. Bond. Date of compilation: 25<sup>th</sup> November 2004.

### *Aporophyla lueneburgensis*

**Species name:** *Aporophyla lueneburgensis* (Freyer, 1848) (*Agrotis*). English Name: NORTHERN DEEP-BROWN DART.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *albidelinea* (Tutt, 1892); *lutulenta* sensu auctt.

Subspecific status: None. This species was previously treated as a northern and western subspecies of *A. lutulenta* (Denis & Schiffermüller, 1775), and its specific status is still not fully accepted.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). Pierce (1909, 1942) illustrates what he refers to as *Epunda/Aporophyla lutulenta*, but the illustrations may refer to the terminalia of *Aporophyla lutulenta*, now considered a separate species.

**Macrohabitats:** Dry siliceous heath.

(In Britain it appears to have a wider range of habitats, being also recorded from coastal dunes and montane heath).

**Adult microsites:** "Hides by day" (Lorimer, 1983).

**Flight Period:** Early August to about mid-September.

**Oviposition site:** Unknown.

**Larval microsites:** Probably on low shrubs, but even this is uncertain, partly due to confusion with *A. lutulenta*. Probably also occasionally on low growing herb-layer plants.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Probably mainly on *Calluna vulgaris*, but occasionally on other low plants, such as *Lotus corniculatus*. It feeds nocturnally in September, and again after winter diapause as a small larva, in April and May; pupating in a subterranean cocoon in June.

**Effectiveness of different sampling methods:** Has been taken at Mercury-vapour light-trap. According to Lorimer (1983), the moth also comes to sugar.

**Range:** This species is found very locally in rocky coastal sites in the north and west of Ireland, and very locally elsewhere. Despite recent searches, it has not been rediscovered in some of its former locations in Northern Ireland. In Britain it occurs in Wales, Northern England and Scotland. Elsewhere in Europe it is reported locally from the Low Countries, Denmark, Germany and France, but there is some uncertainty about its true limits, largely because it was until recently treated as a form of *A. lutulenta*.



**Status:** Local, and possibly declining resident.

**Conservation:** This species is threatened by any developments that negatively impinge on its restricted coastal habitat.

**Compiler:** K.G.M. Bond. Date of compilation: 23<sup>rd</sup> November 2005.

*Aporophyla nigra*

**Species name:** *Aporophyla nigra* (Haworth, 1809) (*Noctua*). English Name: BLACK RUSTIC.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *lunula* (Ström, 1768), nec (Hufnagel, 1766); *aethiops* (Ochsenheimer, 1816).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Epunda/Aporophyla nigra*).

**Macrohabitats:** Rich-soil scrub; grassy forest clearings; dry calcareous and non-calcareous grassland; dry siliceous heath; coastal grey dunes; field margins; urban parks.

**Adult microsites:** Not indicated.

**Flight Period:** In Ireland early September to late October; but in southern England from about the end of September.

**Oviposition site:** Not described.

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Polyphagous on herbaceous plants, including Gramineae, from October to May; overwintering as a small larva. Lorimer (1983) states that growth in spring is usually completed on the buds and leaves of deciduous trees and shrubs. Lorimer (1983) quotes Allan (1949) as stating that some populations are confined to certain foodplants, and "square-stalked willowherb (*Epilobium tetragonum*) is apparently necessary for Irish larvae". This is very surprising, as *E. tetragonum* is considered to be a local, non-native Irish species, almost confined to parts of the south and east (DEFRA *et al.*, 2002). Pupation takes place in a subterranean cocoon in June.

**Effectiveness of different sampling methods:** Has been found fairly frequently at both Mercury-vapour and actinic light-traps. In addition, Lorimer (1983) indicates that the moths feed on flowers such as those of ragwort (*Senecio jacobaea*), red valerian (*Centranthus ruber*), and ivy (*Hedera helix*), and that they come to sugar.

**Range:** Widespread over Ireland, but somewhat local; however, its late flight season probable means that it has been under-recorded. Baynes (1964) indicated that it became scarcer in south Dublin around the 1950's, and there appear to be no recent records from the east or Midlands. It is common in many parts of Britain, but absent from much of eastern England. Widespread but somewhat local over most of Europe and rare in Germany (Koch, 1984); in Scandinavia it is

confined to Norway (as far north as Ålesund), and is unknown in the Baltic States, Czech Republic and Hungary.

**Status:** Fairly widespread resident.

**Conservation:** As it is widely distributed and found in a fairly wide range of habitats, this species does not seem to be significantly under threat.

**Compiler:** K.G.M. Bond. Date of compilation: 7<sup>th</sup> December 2005.

### *Archanara algae*

**Species name:** *Archanara algae* (Esper, 1789) (*Phalaena* (*Noctua*)). English Name: RUSH WAINSCOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *cannae* (Ochsenheimer, 1816).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Nonagria cannae*/[unnamed genus] *cannae* (*algae*)).

**Macrohabitats:** Rich fen/fen-sedge beds & acid fen; *Typha* and *Schoenoplectus* reedbeds.

**Adult microsites:** Not known.

**Flight Period:** Mid-August to late September; for Britain, Goater (1983) gives August and September.

**Oviposition site:** Not known; Pierce ([1978]) refers to the "curious formation of the ovipositor [in this species and *A. sparganii*], which may be specialised for oviposition".

**Larval microsites:** In stems of herbs, including emergent water plants.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Feeds at first in the tips of shoots of *Schoenoplectus lacustris*, causing the top few centimetres to wither, later on *Iris pseudacorus* and *Typha* spp., in which it mines, but in some localities completing its development in *Schoenoplectus lacustris* stems. Late May or June to early August. It then pupates in the feeding place, or sometimes in a dead stem of *Typha latifolia*. Several pupae can sometimes be found together in the stem. Overwintering as an ovum.

**Effectiveness of different sampling methods:** The adults fly for about two hours after dusk, and then rest on the foodplants (Goater, 1983).

**Range:** Found very locally on lakeshores in West Galway, also recently found at Curraghchase, Co. Limerick; Ballaghboy, near Ennis, Co. Clare; and Carrowphadeen, Co. Roscommon. In Britain this species is confined to the Norfolk Broads, an area in Sussex, and very isolated colonies in Hampshire, Kent and Lincolnshire. Widely distributed over southern and central Europe, apart from Portugal and the Mediterranean islands; in the Balkans extending to Albania and Bulgaria; extending in Norway to the Oslo district, and to the southern half of both Sweden and Finland.

**Status:** Very local resident.

**Conservation:** The few breeding sites of this species should be protected, in particular the entomologically rich lakeshore habitat on the west side of Lough Corrib.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

*Archanara dissoluta*

**Species name:** *Archanara dissoluta* (Treitschke, 1825) (*Nonagria*). English Name: BROWN-VEINED WAINSCOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *neurica* (Hübner, 1822), nec (Hübner, 1808); *arundineta* (Schmidt, 1858); *arundineta* misspelling.

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Nonagria arundinata (neurica)/Meliana dissoluta (neurica) (arundinata)*).

**Macrohabitats:** Coastal *Phragmites* reedbeds.

**Adult microsites:** "Rests by day low down on reeds, with its wings clasped around the stem and is very procryptic" (Goater, 1983).

**Flight Period:** August to the beginning of September (Tyner, pers. comm.); for Britain Goater (1983) gives July and August.

**Oviposition site:** Ova are laid "in masses" in the leaf-sheaths of tall herbs.

**Larval microsites:** In stems of tall herbs.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): In stems of *Phragmites australis*; the larva tends to use smaller plants than does the larva of *A. geminipuncta*. It enters the stem by boring a minute hole at the base of an internode, and works upwards. April to July, when it pupates after leaving the feeding burrow and constructs a special pupal burrow in the same or a different stem, very close to the ground. Overwintering as an ovum.

**Effectiveness of different sampling methods:** The Wicklow specimens have been found at light-traps. According to Goater (1983) the adult occasionally comes to sugar.

**Range:** Known from only Cronykeery, near Ashford, Co. Wicklow where it was first taken on 8<sup>th</sup> August 2003; it was again found at this site in 2004 and 2005. Found locally in reedbeds in southern and eastern England from Devon to Yorkshire, and in the Gower district of South Wales; it also occurs very locally in the Midlands, northeast Wales and on the Lancashire coast. Widely distributed but often local over southern and central Europe, but not recorded from Portugal, Luxemburg or Switzerland, and in the Balkans known from only Romania, Bulgaria and Greece; in Fennoscandia known from only the extreme south of Norway, but from the south and parts of the centre of both Sweden and Finland.

**Status:** Very local resident.

**Conservation:** As this species has been recorded from one locality, the nearby reedbed habitats should be protected.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

*Archanara geminipuncta*

**Species name:** *Archanara geminipuncta* (Haworth, 1809) (*Noctua*). English Name: TWIN-SPOTTED WAINSCOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Nonagria/Meliana geminipuncta*).

**Macrohabitats:** Coastal *Phragmites* reedbeds.

**Adult microsites:** Not indicated, but "rests concealed by day" (Goater, 1983).

**Flight Period:** August

**Oviposition site:** The egg is inserted into stems of emergent water plants.

**Larval microsites:** In stems of emergent water plants.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): In the stems of *Phragmites australis*; the larva kills the central leaf, at first near the top of the shoot, and later low down in the same or a different stem. May to July, when it pupates in the larval feeding place. The pre-pupal larva eats out a "window" as far as the epidermis, providing an opportunity for the emerging adult to escape, leaving the pupal exuviae behind in the stem. Overwintering as an ovum

**Effectiveness of different sampling methods:** The Irish specimens have been taken at mercury-vapour light-traps, although Goater (1983) states that the adult has seldom been reported at light, and that it does not feed.

**Range:** First records from Ireland at the Douglas Estuary, Co. Cork in 1991 (Bond, 1992). A further specimen was found at Tacumshin, Co. Wexford in 2000. Locally abundant in reedbeds in southern and eastern England, and the extreme south of Wales, largely coastal, especially in the southwest. Widespread over southern and central Europe and some Mediterranean islands, but not recorded from Albania; extending very locally to the extreme south of both Sweden and Finland.

**Status:** Rare and very local resident.

**Conservation:** This species is vulnerable to destruction of coastal reedbeds, one of which is in an urbanised estuary.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

*Archanara sparganii*

**Species name:** *Archanara sparganii* (Esper, 1790) (*Phalaena* (*Noctua*)). English Name: WEBB'S WAINSCOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Nonagria sparganii*/[unnamed genus] *sparganii*).

**Macrohabitats:** *Typha* & *Sparganium* reedbeds.

**Adult microsites:** Unknown, apart from "rests concealed by day" (Goater, 1983).

**Flight Period:** Not sufficiently known for Ireland; for Britain Goater (1983) gives August to early October.

**Oviposition site:** Not known; Pierce ([1978]) refers to the "curious formation of the ovipositor [in this species and *A. algae*], which may be specialised for oviposition".

**Larval microsites:** In stems of herbs, including emergent water plants.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Feeding in the stems of *Iris pseudacorus*, *Sparganium erectum*, *Typha latifolia* and *T. angustifolia*. June to August, when the larva pupates head upwards in the larval burrow, at this time eating out a "window" through which the emerging adult can escape. Overwintering as an ovum.

**Effectiveness of different sampling methods:** The species has been taken at light-traps. Goater (1983) states that it flies about the foodplants at night, and that the female wanders far from its known haunts.

**Range:** Donovan first recorded this species from Ireland in 1901, and reported it from seven localities along the Cork coast between the old Head of Kinsale and Glandore (Donovan, 1936). It has also been recorded from Ballyvergan, East Cork, and Rosslare, Co. Wexford. The Irish occurrence of this species is not indicated in Emmet (1991). In Britain the species occurs very locally in reedbeds in and near the coast in southern and eastern England, extending to the Scilly Isles and very locally to South Wales. Widely distributed but often local over southern and central Europe, but not recorded from Portugal, Luxemburg or Switzerland, and in the Balkans known from only Romania, Bulgaria and Greece; extending to southern Sweden and Finland, but to only the extreme south in Norway.

**Status:** Very local resident.

**Conservation:** This species is vulnerable to any threat to its restricted coastal wetland habitats, and the current status of the species at its old West Cork sites should be checked. Baynes (1964) wrote that he had inspected some of Donovan's sites for the species and found them considerably changed, due to the spread of *Phragmites* "so that *sparganii* is no longer found in them".

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Brachionycha sphinx*

**Species name:** *Brachionycha sphinx* (Hufnagel, 1766) (*Phalaena*). English Name: THE SPRAWLER.

**Nomenclature:** Psaphidinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *cassinia* (Denis & Schiffermüller, 1775); *cassinea* misspelling.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Asteroscopus cassinea (sphinx)/Brachionycha sphinx (cassinea)*).

**Macrohabitats:** *Quercus/Fraxinus/Corylus* forest; rich-soil scrub; scattered *Quercus* & *Salix*; hedges.

**Adult microsites:** Rests by day on tree-trunks, posts and palings (Lorimer, 1983).

**Flight Period:** Mid-October to mid-November.

**Oviposition site:** On trees; ova are laid in rows or small batches in crevices of tree trunks.

**Larval microsites:** On trees, on the foliage.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Polyphagous on deciduous trees, especially on *Crataegus* spp., *Quercus* spp. and *Salix* spp. The larva feeds externally on May and June, pupating deeply subterranean, in a cocoon in July. Overwintering as an ovum.

**Effectiveness of different sampling methods:** The moth comes to light, and, according to Lorimer (1983), the female flies first, soon after dusk, and the male later, from about 22.30 hrs, but neither sex feeds.

**Range:** Rare and local, although its late flight period may have caused it to be overlooked. The most recent records are from single sites in south Dublin, Longford and Fermanagh, as well as three in south Tyrone. There are also some historical records from the south and west. Widely distributed over England and Wales, but only locally common, and absent from many areas, such as much of the north, midlands and southwest of England. It occurs over most of Europe from Spain to Southern Sweden, but is absent elsewhere in Fennoscandia and the Baltic States; also occurring in Italy and the Balkans apart from Albania.

**Status:** Local resident.

**Conservation:** The ecological requirements of this species in Ireland are difficult to assess, and further late-season light-trapping is needed to show its true distribution.

**Compiler:** K. G. M. Bond. Date of compilation: 8<sup>th</sup> February 2006.

*Atethmia centrago*

**Species name:** *Atethmia centrago* (Haworth, 1809) (*Noctua*). English Name: CENTRE-BARRED SALLOW.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *xerampelina* sensu Hübner, 1809.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Cirrhoidia/Atethmia xerampelina*).

**Macrohabitats:** *Quercus/Fraxinus/Corylus* and *Fraxinus* forests; hardwood alluvial forests and brook floodplains; hedges and urban parks.

**Adult microsites:** Not indicated.

**Flight Period:** Late August to mid-September. Thompson & Nelson (2003) include early August.

**Oviposition site:** On trees; in cracks in the bark or near buds of the foodplant.

**Larval microsites:** On trees; in and on the foliage.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding from April to June on *Fraxinus excelsior*; boring into the unopened buds on which it feeds at first, then nocturnally on the flowers; hiding by day in bark crevices, or descending to hide below the tree and then ascending rapidly at dusk to feed. Pupating in a subterranean cocoon in July. Overwintering as an ovum.

**Effectiveness of different sampling methods:** Has been taken at various type of light-trap, although Thompson & Nelson (2002) state that it appears only sparingly at light. It also comes infrequently to sugar (Lorimer, 1983).

**Range:** Rather local, but widely distributed; there are few records from much of the midlands and west, while it is relatively common in cos Down and Armagh. Widely distributed over most of Britain, but becoming more local in Scotland, where it extends to the Inner Hebrides in the west and Banff in the east. It also occurs on the Isle of Man. In continental Europe this species is distributed from Spain to Greece, and northwards to Northern Germany, but absent from Denmark and Fennoscandia, and from the Mediterranean islands.

**Status:** Local resident.

**Conservation:** There appears to be no obvious threat to this species in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 9<sup>th</sup> February 2006.

*Autographa bractea*

**Species name:** *Autographa bractea* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: GOLD SPANGLE.

**Nomenclature:** Plusiinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Plusia bractea*).

**Macrohabitats:** Tall-herb & grassy forest clearings; humid eutrophic grassland (non-flooded); improved lightly-grazed grassland; fallow land & field margins.

**Adult microsites:** Not indicated.

**Flight Period:** Mid- or late June to early August.

**Oviposition site:** Not indicated

**Larval microsites:** On low-growing plants of the herb layer; overwintering in herb-layer litter.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Polyphagous on a wide range of forbs, of which Brooks (1991) specifically mentions *Urtica dioica* and *Taraxacum* agg.; feeding externally from late August to the following May, when it pupates in a cocoon in detritus. Overwintering as a diapausing larva and resuming feeding in spring.

**Effectiveness of different sampling methods:** The adult comes to light-traps, usually in small numbers. According to Lorimer (1983) it is more strongly attracted to flowers.

**Range:** Widely distributed over Ireland, and fairly common in many districts. It appears to be more common in the north than the south, reflecting its distribution in Britain. It is generally distributed over Scotland, including Orkney and the Hebrides, also Wales and the northern half of England. In the south and southeast of England it is of only sporadic occurrence, and it is thought that some records refer to migrants. It has also shown a long-term southward spread since about 1970. Widespread in central and northern Europe, extending north to central Norway and northern Sweden; in southern Europe it is unknown in Portugal and the Mediterranean islands, and it is absent from the Balkans apart from Romania and Bulgaria.

**Status:** Resident.

**Conservation:** The Irish status of this species appears to be stable.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.



*Autographa gamma*

**Species name:** *Autographa gamma* (Linnaeus, 1758). English Name: SILVER Y.

**Nomenclature:** Plusiinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Plusia gamma*).

**Macrohabitats:** Unimproved dry calcareous grassland; coastal grey dunes, machair and dune slacks

**Adult microsites:** Not indicated.

**Flight Period:** The main flight period is from about the end of May to the end of October, peaking in August and September, but sometimes continuing into late November, in several generations.

**Oviposition site:** Ova are laid singly or in small groups on leaves and stems of herbaceous plants.

**Larval microsites:** On low-growing plants of the herb layer, tall herbs & hummocks of small herbs.

**Food and feeding habitats** (Bretherton, 1983); (Emmet, 1991); (Skinner, 1998): Even though it is thought incapable of surviving frost, this species probably breeds fairly frequently in Ireland at various seasons in the warmer part of the year. Polyphagous on herbaceous plants; pupating in a loose cocoon among leaves.

**Effectiveness of different sampling methods:** The adult is attracted to light-traps, sometimes in enormous numbers; it can also be found in rapid diurnal flight, especially in warm weather. It also visits flowers, especially at dusk.

**Range:** Found throughout Ireland, in favourable years in large numbers, but most commonly on and near southern, eastern and western coasts. In Britain it is the most common Noctuid migrant, found frequently in large numbers in the south and east, but extending northwards to the north of Scotland. This species is resident in southern Europe, but is a regular and common migrant northwards, extending beyond the Arctic Circle in Fennoscandia, and it has even been recorded from Iceland and Greenland.

**Status:** Migrant, very common in many years; possible transitory resident in favourable years.

**Conservation:** The abundance and ubiquity of this species indicate that it is of no conservation concern.

**Compiler:** K. G.M. Bond. Date of compilation: 11<sup>th</sup> January 2006.

*Autographa jota*

**Species name:** *Autographa jota* (Linnaeus, 1758) (*Phalaena (Noctua)*). English Name: PLAIN GOLDEN Y.

**Nomenclature:** Plusiinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *iota* misspelling; *inscripta* (Esper, 1787); *gammaaurina* (Haworth, 1809); *percontationis* (Ochsenheimer, 1816).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Plusia iota/jota (iota)*). The separation of this species and *A. pulchrina* by wing pattern is discussed and illustrated by Heath (1970).

**Macrohabitats:** Mature & sapling acidophilous *Quercus*; rich-soil scrub; tall-herb & grassy forest clearings; fallow land, field margins, hedges, orchards & urban parks.

**Adult microsites:** Not known.

**Flight Period:** Late June to about the middle of August, similar to the British flight period.

**Oviposition site:** On the leaves of the foodplant, laid singly.

**Larval microsites:** On upward-growing lianas, tall herbs & low-growing plants of the herb layer; hibernating in herb-layer or forest litter.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Polyphagous, on forbs, especially *Urtica* spp. and *Lonicera periclymenum* but also known from several species of deciduous tree and shrub; at least in captivity (Skinner, 1998). Pupates in a silken cocoon within a folded leaf. As with *P. pulchrina* (Lorimer, 1983), overwintering in ground litter in larval diapause, which lasts from about October to February.

**Effectiveness of different sampling methods:** Adults come in good numbers to light-traps; and, according to flowers but not to sugar

**Range:** Generally distributed and fairly common throughout Ireland; except perhaps in the west of Connaught and Donegal, where it seems to be only local. Generally distributed over Britain as far north as Orkney and the Outer Hebrides, but relatively uncommon in the Scottish Highlands, and less common generally in northern areas than *A. pulchrina* (Lorimer, 1983). Generally distributed over Europe, apart from Portugal, Albania and European Turkey; but found on Sardinia. It extends northwards to southern Norway and central Sweden.

**Status:** Resident.

**Conservation:** No perceived threat.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

### *Autographa pulchrina*

**Species name:** *Autographa pulchrina* (Haworth, 1809) (*Phytometra*). English Name: BEAUTIFUL GOLDEN Y.

**Nomenclature:** Plusiinae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *v-aureum* (Guenée, 1852).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Plusia v-aureum (pulchrina)/pulchrina (v-aureum)*). The separation of this species and *A. jota* by wing pattern is discussed and illustrated by Heath (1970).

**Macrohabitats:** Tall-herb and grassy forest clearings; fallow land, field margins & urban parks.

**Adult microsites:** "Hides by day", otherwise unknown.

**Flight Period:** From about the middle of June to early August; occasionally recorded as late as late August.

**Oviposition site:** On the leaves of the foodplant, laid singly.

**Larval microsites:** On upward-growing lianas, tall herbs & low-growing plants of the herb layer; hibernating in herb-layer or forest litter.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally on the foliage of *Urtica dioica*, also on *U. urens*, *Lamium album*, *Stachys sylvatica*, *Senecio vulgaris*, *Lonicera periclymenum* and *Geum urbanum*, from August to the following May, when it pupates in a silken cocoon within a folded leaf. Overwintering in ground litter in larval diapause, which lasts from about October to February.

**Effectiveness of different sampling methods:** The adult is found regularly in good numbers at light-traps; it also feeds at flowers from dusk (Lorimer, 1983).

**Range:** Generally distributed and common throughout Ireland. In Britain it is generally distributed from south to north, including Shetland and the Outer Hebrides, and Lorimer (1983) states that it is more common in the north. Generally distributed over the European mainland, apart from Albania and European Turkey; also found on Sardinia, and extending north to northern Scandinavia.

**Status:** Resident.

**Conservation:** This species is not considered under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

### *Axylia putris*

**Species name:** *Axylia putris* (Linnaeus, 1761) (*Phalaena (Noctua)*). English Name: THE FLAME.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *subcorticalis* (Hufnagel, 1766).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Axylia putris*).

**Macrohabitats:** Dry non-calcareous grassland; fallow fields, field margins & urban parks.

**Adult microsites:** Not indicated.

**Flight Period:** End of May to beginning of August. For Britain Goater (1979) gives June and July, with occasional specimens recorded late August to October.

**Oviposition site:** Underside of the foodplant, laid in large batches.

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Polyphagous, feeding nocturnally on the foliage of forbs, including *Rumex*, *Polygonum*, *Lamium*, *Taraxacum* and *Chenopodium* spp., as well as on *Galium mollugo* and *Cynoglossum officinale*, from late July to September; then pupating in a brittle, earthen cocoon (Goater, 1979) in which it overwinters.

**Effectiveness of different sampling methods:** Regularly taken at light-traps, also reported by Goater (1979) as being attracted to flowers and light.

**Range:** Common and widely distributed throughout Ireland. However, there are few records from some boggy areas of the west. Common in England, Wales and the Isle of Man, scarcer in Scotland where it extends northwards to the Moray Firth and the southern extremities of the Hebrides. Recorded from all European mainland countries and from Corsica and Sicily; extending to about 61°N in Norway; and to the south, and locally central parts of Sweden and Finland.

**Status:** Resident.

**Conservation:** This species is not considered under threat in Ireland.

**Compiler:** Date of compilation:

### *Brachylomia viminalis*

**Species name:** *Brachylomia viminalis* (Fabricius, 1777) (*Noctua*). English Name: MINOR SHOULDER-KNOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *scripta* (Hübner, 1803); *obscura* (Staudinger, 1871).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Cleoceris/Bombycia viminalis*).

**Macrohabitats:** Fen carr.

**Adult microsites:** Hides by day among undergrowth and fallen leaves (Lorimer, 1983).

**Flight Period:** July and August (Lorimer, 1983).

**Oviposition site:** Ova are laid on the twigs of the foodplant, either singly or in small heaps.

**Larval microsites:** On trees; on shoots and leaves.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding on *Salix* spp., initially in spun terminal shoots, from April to early June; in the latter part it feeds nocturnally and hides by day between spun leaves. Pupation occurs later in June, either subterranean or between dead leaves on the ground. Overwintering as an ovum on the twigs of the foodplant.

**Effectiveness of different sampling methods:** The adult comes to honey-dew, sugar and light, but is also attracted to various flowers.

**Range:** Rare in Ireland. There are old records from several parts of the country, from Kerry northwards to Donegal and Antrim, but the only recent ones appear to be from two sites in Co. Fermanagh (Thompson & Nelson, 2002). This species is much more common in Britain, where it is widespread and locally common, extending northwards to Orkney, and also occurring in the Western Isles. Generally distributed over mainland Europe, absent from only Portugal and the Mediterranean islands, extending to northernmost Scandinavia.

**Status:** Rare resident.

**Conservation:** The Irish status of this species needs to be investigated, as it appears to have become very scarce.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Calamia tridens*

**Species name:** *Calamia tridens occidentalis* Cockayne, 1954 [*tridens tridens* (Hufnagel, 1766)] (*Phalaena*). English Name: BURREN GREEN.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *virens* (Linnaeus, 1767)

Subspecific status: The endemic Irish subspecies *occidentalis* is described in Cockayne (1954).

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The larva is discussed by Cockayne (1951). The terminalia are not illustrated in Pierce (1909, 1942).

**Macrohabitats:** Unimproved dry calcareous grassland; limestone pavement.

**Adult microsites:** Little known, but the adults are reported to have been found hanging from grass-stems after emergence (Goater, 1983).

**Flight Period:** Probably from the end of July to early September. All the records on the Irish Noctuidae Database are from August, with the highest numbers near the end of the month.

**Oviposition site:** Not known, but the egg is probably inserted between the roots or stem-bases (Myers, pers. comm.).

**Larval microsites:** On and in low-growing plants of the herb layer.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): The larva hatches in spring (Cockayne (1951). The natural foodplant is generally thought to be *Sesleria caerulea*,

although it has been reared on *Poa annua* and *Dactylis glomerata*; feeding within the grass-stems, later in a tube of grass and frass spun together amongst the roots and stem-bases. It then feeds on the rootstock, green blades and young flowers. At ecdysis it always spins a weak cocoon in which to moult. April to June, when it pupates; the natural method and site of pupation are not recorded. Overwintering as an ovum.

**Effectiveness of different sampling methods:** The adults have been readily found at mercury-vapour light-traps and other light sources.

**Range:** Confined to the Burren, Co. Clare, where it was first detected as recently as 1949 (Classey, 1950). It is reported to be locally common there, but mainly on the coast (Baynes, 1964). It has less often been found further inland, at Carran, Corofin and Rinnamona Lough, and more recently (1996) at Lough Bunny. This species is unknown in Britain. Widely distributed central and southern Europe, only near Oslo in Norway, but extending to about 60°N. in Sweden and 62°N in Finland. Absent from the Mediterranean islands and European Turkey.

**Status:** Very local resident.

**Conservation:** Although the population levels of this species appear to be stable; the localised distribution of this endemic Burren form emphasizes the need for a comprehensive management strategy for the entire area.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Callistege mi*

**Species name:** *Callistege mi* (Clerck, 1759) (*Ph[alaena]*). English Name: MOTHER SHIPTON *Calamia*

**Nomenclature:** Catocalinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Euclidia/Euchdimera mi*).

**Macrohabitats:** Dry calcareous grassland; coastal grey dunes.

**Adult microsites:** A day-flying species that alights on flowers, vegetation or the ground between short active flights.

**Flight Period:** Mid-May to mid-June; for Britain, Lorimer (1983) indicates late May and throughout June, while Skinner (1998) gives May and June.

**Oviposition site:** Not indicated.

**Larval microsites:** On low-growing plants of the herb layer; overwintering in herb-layer litter (on the basis of the observed macrohabitats, its occurrence on *Phragmites* is considered unlikely in Ireland).

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): According to Lorimer (1983) the larva feeds on *Trifolium pratense* and *T. repens*, also on *Melilotus officinalis*; but Emmet (1991) and Skinner (1998) state that it feeds on *Phragmites australis* and “coarse grasses”. Continental authors consulted indicate *Trifolium* and *Vicia* species (Gustafsson, 2004); (*Norges Sommerfugler*, 2001). Feeding externally and nocturnally, from July to September; pupating in a cocoon in detritus in autumn and overwintering as a pupa. The larva “loops” in the manner of a Geometrid.

**Effectiveness of different sampling methods:** The adult can be found flying, or sitting on flowers by day. It takes short flights, but is very active and difficult to approach.

**Range:** Widely distributed, but local, occurring in grassy coastal areas. Apart from the Burren, Co. Clare, it occurs only very locally inland. Widespread and fairly common locally in southern and central England and Wales; more local northwards, to the central Highlands and Inner Hebrides, local in the Isle of Man. Generally distributed over Europe apart from European Turkey and some of the Mediterranean islands; extending northwards locally in Scandinavia to beyond the Arctic Circle.

**Status:** Local resident.

**Conservation:** This local species is vulnerable to loss of unimproved calcareous grassland, and has almost certainly lost much of its habitat in Ireland during the 20<sup>th</sup> century.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

### *Caradrina morpheus*

**Species name:** *Caradrina morpheus* (Hufnagel, 1766) (*Phalaena*). English Name: MOTTLED RUSTIC.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *pulla* (Beckwith, 1794), nec (Esper, 1785); *sepii* (Hübner, 1803)

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Caradrina/Abromias morpheus*).

**Macrohabitats:** Tall-herb and grassy forest clearings; unimproved dry calcareous & non-calcareous grassland; coastal grey dunes; fallow land, field margins & urban parks.

**Adult microsites:** Rests concealed by day (Goater, 1983).

**Flight Period:** End of May to beginning of August.

**Oviposition site:** Not indicated.

**Larval microsites:** On low-growing plants of the herb layer; more rarely on tall forbs or understorey trees.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); Skinner, 1998): Feeds on a wide range of herbaceous plants, of which Goater (1983) specifically mentions *Chenopodium* spp., *Polygonum*

*aviculare*, *Stellaria media*, *Urtica* spp., *Dipsacus fullonum*, *Taraxacum* agg., *Galium mollugo*, *Humulus lupulus* and *Sedum telephium*; he also mentions *Salix caprea* as a foodplant. The larva lies concealed by day and feeds externally on the foodplants at night from August to November. It ceases feeding and enters diapause in December, forming a large cocoon of silk and earth, overwintering in this cocoon among roots or in tufts of coarse grass. Pupation occurs in spring.

**Effectiveness of different sampling methods:** Frequently taken at Mercury-vapour light-trap, but usually in small numbers. It also visits flowers (Goater, 1983), and occasionally sugar (Skinner, 1998).

**Range:** Stated by Baynes (1964) to be rare in Ireland, but there are many recent records from the south and east. It is clearly much less common further north and in the west, and it has not been recorded from Co. Donegal. In Britain it is common in the south, becoming scarcer northwards to Scotland, where it extends as far as the Outer Hebrides. Generally distributed over mainland Europe, apart from Albania and Turkey, and extending northwards to central Scandinavia and Finland.

**Status:** Resident, fairly common in south and south-east, local or absent elsewhere.

**Conservation:** This species appears to be under little threat in the parts of the south in which it has been recorded frequently, but more regular light-trapping is required to confirm that this is still the case. Loss of herb-rich grassland and road verges may present a threat in some localities.

**Compiler:** K.G.M. Bond. Date of compilation: 11<sup>th</sup> January 2006.

### *Celaena haworthii*

**Species name:** *Celaena haworthii* (Curtis, 1829) (*Apamea*). English Name: HAWORTH'S MINOR.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *haworthi* misspelling; *hibernica* Stephens, 1829; *lancea* Stephens, 1829.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Celoena/Celaena haworthii*).

**Macrohabitats:** Humid/flooded eutrophic & oligotrophic grassland; wet heath; raised, blanket and cutover bog.

**Adult microsites:** Not indicated, apart from Goater's (1983) statement that the males alight on the tips of the foodplant or other vegetation and run back rapidly into concealment following an afternoon flight in sunny weather.

**Flight Period:** From about the beginning of August to late September; the females sometimes fly by day.

**Oviposition site:** Not stated.

**Larval microsites:** In low-growing plants of the herb layer.



**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): On *Eriophorum* spp, in the stems. It is assumed that the larva also has other foodplants, as it is sometimes common in areas where *Eriophorum* is scarce or absent, and "*Juncus* or *Scirpus* spp." have been suggested as alternatives (Goater (1983), quoting Forster & Wohlfahrt (1971)). Feeding from April to July, then pupating in a cocoon in detritus. Overwintering as an ovum.

**Effectiveness of different sampling methods:** Can be found at both Mercury-vapour and Actinic light-traps, the adult has also been observed by day on several occasions. Goater (1983) states that there is a strong afternoon flight of males in sunshine, and that both sexes come to sugar, ragwort (*Senecio jacobaea*) and heather.

**Range:** This species is common in boggy area of the Midlands, west and northwest; but is much more local elsewhere. Specimens have, however, been found at two sites in Co. Cork and Arklow, Co. Wicklow, where the foodplants are unlikely to be *Eriophorum* spp. In Britain it is almost entirely confined to the moorlands of the north and west, from mid-Wales and the southern Pennines northwards, with isolated population in the south and east of England. Widespread over northern and north-western Europe, but extending only to Austria and northern France. It extends north into central Fennoscandia.

**Status:** Locally common resident.

**Conservation:** The range of this species in Ireland seems to have declined little, but further loss of intact raised and blanket bogs will cause a further decline of the species.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Celaena leucostigma*

**Species name:** *Celaena leucostigma* (Hübner, 1808) (*Noctua*). English Name: THE CRESCENT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *fibrosa* (Hübner, 1808); *lunina* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Crymodes fibrosalleucostigma*).

**Macrohabitats:** Humid non-flooded eutrophic, humid/flooded oligotrophic & *Molinia* grassland; acid fen & transition mire; *Sparganium*, tall *Carex*, marsh and tall herb reed/sedge beds.

**Adult microsites:** Not known diurnally, but after dark may be found resting on the leaves of reeds (Goater, 1983).

**Flight Period:** Late July to early September, occasionally to late September.

**Oviposition site:** Ova are laid in long rows on dead stems of reeds and probably other plants, covered with a waterproof secretion (Goater, 1983).

**Larval microsites:** In leaves/stems of herb layer plants, sometimes in stem bases below ground.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): On *Cladium mariscus*; *Iris pseudacorus*, and probably other foodplants. Feeding in the stems of its foodplant, also sometimes in the leaves or the roots. The larva bores through the leaf parenchyma giving very little trace of its presence. March to June, pupating in a cocoon in detritus in July. Overwintering as an ovum.

**Effectiveness of different sampling methods:** Frequently encountered at both Mercury-vapour and Actinic light-traps. It has also been taken quite frequently at Malaise Trap. It is also attracted to sugar and honey-dew after dark (Goater, 1983). Adults are sometimes observed by day.

**Range:** Generally distributed over Ireland, and common in damp and marshy areas. Widespread throughout Britain in damp localities to the Outer Hebrides and Northern Isles; represented in the Highlands and Hebrides by subsp. *scotica* Cockayne, 1944. In the far northeast it is sporadic, and probably migratory, as Orkney specimens were typical. It is widespread in Europe northwards to Norway (very local), northern Sweden, and Finland; it is also recorded from Iceland. It appears to be more local in southern Europe, and has not been recorded from Portugal, Turkey or the former Yugoslavia.

**Status:** Common resident, especially in damper areas of the west, but much less common in eastern parts.

**Conservation:** The species appears to be stable in Ireland, but has suffered local losses of habitat due to road construction, drainage, etc.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Cerapteryx graminis*

**Species name:** *Cerapteryx graminis* (Linnaeus, 1758) (*Phalaena* (*Bombyx*)). English Name: ANTLER MOTH.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *gramineus* (Haworth, 1803); *hibernicus* Curtis, 1833.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Charaeas/Cerapteryx graminis*).

**Macrohabitats:** Unimproved calcareous and non-calcareous dry grassland; humid/flooded oligotrophic *Molinia* grassland; montane grassland; coastal grey dunes and machair; blanket bog.

**Adult microsites:** Not indicated, but specimens are sometimes found flying or visiting flowers, by day, and according to Lorimer (1979) it has a short mid-morning flight

**Flight Period:** In Ireland from late July to early September, but occasionally until late September. In Britain from about mid-July to early September in the north, being most abundant from early August (Lorimer, 1979).

**Oviposition site:** On low-growing plants (grasses) of the herb layer; the ova are dropped on vegetation during low flight of the female.

**Larval microsites:** On low growing plants of the herb layer; on tussocks of grasses.

**Food and feeding habitats** (Lorimer, 1979) (Emmet, 1991): Feeds externally at night on grasses, especially those of harder texture such as *Nardus stricta*, *Molinia caerulea* and *Festuca ovina*, but probably concealed in the bases of grass tussocks by day, from March to June, pupating in a subterranean cocoon in June. Occasional population explosions have been recorded in which the larvae feed by day as well. Overwintering as an ovum.

**Effectiveness of different sampling methods:** Found, sometimes commonly, at light-traps, both Mercury-vapour and Actinic, but also quite often observed by day. According to Lorimer (1979) the moth has a short mid-morning flight, and in calm weather will feed throughout the day on flowers of ragwort (*Senecio jacobaea*), thistle, hogweed (*Heracleum sphondylium*) and other Umbelliferae.

**Range:** Widespread, and common in many places in the west and northwest; more local in the east and southeast, where it also occurs locally on sand-dunes. Found throughout Britain, but more common in the north and west and on acid soils. Found through mainland Europe, apart from Portugal and Greece; also recorded from Iceland.

**Status:** A locally common to abundant species over much of the western half of Ireland, much less common further east.

**Conservation:** The status of the moth seems to be stable in western parts of Ireland, but smaller colonies in the eastern half of the country are threatened by agricultural impacts on unimproved grassland, and loss of coastal grassland.

**Compiler:** K.G.M. Bond. Date of compilation: 6<sup>th</sup> December 2005.

### *Cerastis rubricosa*

**Species name:** *Cerastis rubricosa* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: RED CHESTNUT.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *rufa* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Trachea/Cerastis rubricosa*).

**Macrohabitats:** On scattered trees (*Salix*) & tall-herb and grassy forest clearings; in fen carr.

**Adult microsites:** Not indicated.

**Flight Period:** Available Irish records range from early April to mid-May, with one in early June; for Britain, Emmet (1991) gives March and April.

**Oviposition site:** Not stated.

**Larval microsites:** On low-growing plants of the herb layer, occasionally on trees; on the foliage.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeds nocturnally from May to June or early July on *Senecio vulgaris*, *Rumex* and *Galium* spp., also on other forbs and *Salix* spp. According to Barrett (1899), quoted in Goater (1979), it also stays on the foodplant by day. Pupating in a subterranean cocoon in late June or July.

**Effectiveness of different sampling methods:** Found regularly at light-traps. According to Goater (1979) it is a regular visitor at willow-bloom.

**Range:** Locally distributed throughout Ireland, but apparently most common in the north; and scarce in much of the south, Midlands and east. Its early flight period means that it may be under-recorded from light-trap surveys. In Britain the species is widespread, extending to Orkney and the Outer Hebrides, and it is common in many areas. Generally distributed over mainland Europe and some of the Mediterranean islands; extending north to about the Arctic Circle in Fennoscandia.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Charanyca trigrammica*

**Species name:** *Charanyca trigrammica* (Hufnagel, 1766) (*Phalaena*). English Name: TREBLE LINES.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *quercus* (Fabricius, 1775); *trilinea* (Denis & Schiffermüller, 1775); *bilinea* (Hübner, 1803); *approximans* (Haworth, 1809); *semifuscans* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Grammesia trilinea (trigrammica)*/*Meristis trigrammica (trilinea)*).

**Macrohabitats:** Tall-herb & grassy forest clearings; field margins & urban parks [in Ireland very strongly associated with deciduous woodland].

**Adult microsites:** Not indicated.

**Flight Period:** Late May to late June. For Britain, Goater (1983) gives mid-May to early July.

**Oviposition site:** Not stated, but the ova are probably laid on stems of the foodplants.

**Larval microsites:** On low forbs, both above and below the soil surface.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds nocturnally on *Plantago major* and other forbs, largely at ground level. According to Goater (1983) it spends much of the time in the soil and "becomes very dirty". Late July to the following April, when it pupates in a subterranean cocoon. Overwintering as a feeding larva.

**Effectiveness of different sampling methods:** The species is regularly taken at light-traps. Goater (1983) states that the adult is also strongly attracted to sugar and flowers.

**Range:** Widely distributed over Ireland, and common in some well-wooded areas of the south and east, and also in the Burren, becoming scarcer northwards and westwards. It seems to be absent from most of Galway and Mayo, and there are no records from Donegal, and few from other parts of Ulster apart from north Armagh. Common in the south of England, becoming more local northwards, but extending to the north of Cumbria; local in the Isle of Man. It is generally distributed over Europe, apart from Portugal and some of the Mediterranean islands; extending to southern Sweden, but only the extreme south of Norway and Finland.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 9<sup>th</sup> February 2006.

### *Chilodes maritimus*

**Species name:** *Chilodes maritimus* (Tauscher, 1806) (*Noctua*). English Name: SILKY WAINSCOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *bipunctata* (Haworth, 1812); *ulvae* (Hübner, 1817); *sericea* (Curtis, 1828); *anella* sensu Stephens, 1834.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Senta ulvae (maritima)/Chilodes maritima (ulvae)*).

**Macrohabitats:** *Phragmites* reedbeds (coastal and non-coastal).

**Adult microsites:** Concealed by day, but at night it rests or flutters on the stems and leaves of reeds between flights.

**Flight Period:** The only Irish record is from mid-July. According to Goater (1983) in Britain it flies over a rather long period, from early June to mid-August.

**Oviposition site:** Not stated, but the ova are probably inserted into the plant stem.

**Larval microsites:** In stems of tall, emergent herbs which have been tunnelled by *Archanara* spp.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); Skinner, 1998): Carnivorous, living within stems of *Phragmites australis* where it feeds on other insects and other animal matter such as old and parasitised pupae. It unable to enter an unopened stem and overwinters in stems which have been broken or tunnelled by *Archanara* spp. September to April, pupating in May.

**Effectiveness of different sampling methods:** The adults are strongly attracted to artificial light (Goater, 1983).

**Range:** Known from only Ballyvergan Fen, East Cork, where four specimens were found on 14th July 1990 (Bond, 1994). In Britain this species is locally common in large reedbeds in the east and south of England; it also occurs on the Gower peninsula, south Wales.

**Status:** Rare resident.

**Conservation:** The reedbed habitat of this species requires protection. The site is currently classified as a proposed NHA.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Coenobia rufa*

**Species name:** *Coenobia rufa* (Haworth, 1809) (*Phytometra*). English Name: SMALL RUFOUS.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *despecta* (Treitschke, 1825); *lineola* (Stephens, 1830).

**Subspecific status:** None

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). This species might be confused with certain colour forms of *Chortodes pygmina*, but the wing shape (more curved costa) helps to distinguish it. The terminalia are illustrated in Pierce (1909, 1942) (as *Nonagria despecta*/*Coenobia rufa*).

**Macrohabitats:** Humid/flooded oligotrophic grassland; wet heath; blanket bog & cutover bog.

**Adult microsites:** Resting concealed by day, the female may be found resting on the foodplant at night (Goater, 1983).

**Flight Period:** In Ireland from early August to early September. Goater (1983) gives July and August for Britain.

**Oviposition site:** The ova are laid in the old stems of rush (*Juncus* spp.). The female moth has two sharp spines on abdominal segment 8 and these are used to make a longitudinal slit in the stem of the foodplant, into which 3-8 eggs are laid at a time; the slit in the stem becomes almost invisible when the ovipositor is withdrawn (Goater, 1983).

**Larval microsites:** In stems of herb layer plants.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Feeding in the stems, mainly of *Juncus acutiflorus*, also those of *J. articulatus* and *J. effusus*. Gregarious; the larvae producing galleries in the pith of the stem. September to April, but overwintering in diapause in the feeding site from about October to March. The full-fed larva enters a new stem and eats out a chamber in which to pupate in June.

**Effectiveness of different sampling methods:** Has been taken at Mercury-vapour light-trap, and also occasionally seen by day. Twice recorded from Malaise Traps in 2002. According to Goater (1983), there is a strong pre-dusk flight of the males, low over the vegetation, but the female

seldom flies, and is sometimes found resting on the foodplant; while the species does not seem to fly much later in the night.

**Range:** This species is found very locally in marshes, fens, and on bog margins in the south, east and west of Ireland. In Britain it is common very locally in similar habitats, extending very locally to southern Scotland and the Inner Hebrides (Mull). In Mainland Europe it is recorded from Portugal to the extreme south of Sweden, extending locally to Romania and Italy.

**Status:** Very local resident.

**Conservation:** This species is under threat from loss of its localised wetland habitat although its main, possibly only, foodplant, *Juncus acutiflorus*, is common in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Colocasia coryli*

**Species name:** *Colocasia coryli* (Linnaeus, 1758) (*Phalaena (Bombyx)*). English Name: NUT-TREE TUSSOCK.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Note: this species is placed in the family Pantheidae in Karsholt & Razowski (1996).

Synonymy: *corylus* Haworth, 1803.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Demas/Colocasia coryli*).

**Macrohabitats:** *Quercus/Fraxinus/Corylus* forest; mature and sapling acidophilous *Quercus* forest; mature & sapling *Betula* forest; rich-soil scrub; scattered *Quercus* and *Betula* trees; hedges & urban parks.

**Adult microsites:** Not indicated.

**Flight Period:** Early May to late June. Irish adult records give no indication of a second generation, such as occurs in Southern England in August, after a late April to early June one, producing larvae again in September and October (Lorimer, 1983).

**Oviposition site:** Not indicated, but presumably on the foliage of deciduous trees.

**Larval microsites:** On deciduous trees, within the foliage.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998); Norges Sommerfugler (2001): Feeding on the foliage of many of deciduous tree species, especially *Corylus avellana*, *Betula* spp.; also *Fagus sylvatica*; other foodplants include *Quercus* spp., *Crataegus monogyna*, *Carpinus betulus*, *Alnus glutinosa*, *Prunus spinosa* *Acer campestre* *Malus* spp. and *Populus tremula*. The Irish records suggest a much stronger association with *Corylus avellana* than with *Betula* spp. Throughout its development it rests or awaits ecdysis between spun leaves, emerging to feed at night. June and early July, pupating late July in a cocoon of silk and moss, usually under moss at the base of a tree trunk or under fallen leaves, or even on the trunk. Overwintering as a pupa.

**Effectiveness of different sampling methods:** The adults are regularly taken at light-traps, sometimes in large numbers. According to Lorimer (1983) it is not attracted to flowers or sugar.

**Range:** Widely distributed and common in some well-wooded localities in Ireland. It seems to be scarce in much of the midlands and in Northern Ireland north of Lough Neagh. Common in the south and southeast of England, becoming more scattered northwards and apparently very local in Yorkshire and the Midlands, but widespread in Scotland where it extends to the north of the mainland and to the Inner Hebrides. Recorded from all European mainland countries except Albania, and also reported from the Mediterranean islands; extending north to southern and western Norway, the far north of Sweden and parts of central Finland.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Conistra ligula*

**Species name:** *Conistra ligula* (Esper, 1791) (*Phalaena* (*Noctua*)). English Name: DARK CHESTNUT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *subnigra* (Haworth, 1809); *spadicea* sensu Pierce (1909).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Cerastis spadicea/Conistra ligula* (*spadicea*)). The separation of *C. vaccinii* and *C. ligula* by wing shape is illustrated in Heath (1972).

**Macrohabitats:** Mature and sapling *Quercus/Fraxinus/Corylus* & acidophilous forests; rich-soil scrub; *Salix* swamp; softwood & hardwood alluvial forest; scattered *Quercus* & *Salix*; urban parks.

**Adult microsites:** Spends the daytime among thick herbage, especially ivy (Bretherton, *In* Lorimer, 1983).

**Flight Period:** From about October to the end of February, but Lorimer (1983) suggests that only females are found after mid-January.

**Oviposition site:** Not stated, but "laid in untidy masses" (Lorimer, 1983).

**Larval microsites:** On trees, later also on forbs.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding from April to early July, first on the catkins or flower-buds of deciduous trees, especially *Salix* spp., also on *Prunus* and *Quercus* spp., later on the leaves, finally descending to the ground to feed on herbaceous plants. After resting for some weeks in a subterranean cocoon it pupates there in September. Overwintering as an adult.



**Effectiveness of different sampling methods:** Irish records of the adult have been from light-traps, but it is also stated to feed at night after emerging from thick herbage, especially ivy (Bretherton *In* Lorimer, 1983).

**Range:** A rather rare species in Ireland, but probably overlooked because of its flight season. There are recent records from several sites in north Armagh, Wicklow, north Wexford and Donegal. Widely distributed but rather local over England and Wales, becoming scarcer northwards, and found only very locally in Scotland, as far north as the Highlands. Widespread in southern and western Europe, and the Balkans to Greece, but absent from northern parts, extending only locally to the Netherlands, Germany, Poland and Lithuania, but not known with certainty from the Mediterranean islands.

**Status:** Resident.

**Conservation:** Although the lack of records suggest that it is a rare species in Ireland, this may be largely due to lack of late-season light-trapping, and it is therefore considered that the species is not in need of protection.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Conistra vaccinii*

**Species name:** *Conistra vaccinii* (Linnaeus, 1761) (*Phalaena* (*Noctua*)). English Name: THE CHESTNUT

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *polita* (Denis & Schiffermüller, 1775); *spadicea* (Denis & Schiffermüller, 1775).

Subspecific status: None; although there are many named forms, none of which is given subspecific status.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Cerastis/Conistra vaccinii*). The separation of *C. vaccinii* and *C. ligula* by wing shape is illustrated in Heath (1972).

**Macrohabitats:** *Quercus/Fraxinus/Corylus*, acidophilous *Quercus* & *Betula* forest; rich-soil scrub; hardwood alluvial forest; scattered *Quercus* & *Betula*; urban parks

**Adult microsites:** Not indicated.

**Flight Period:** From about the beginning of October to mid-April, with incomplete hibernation in winter. The great majority of records on the *Irish Noctuidae Database* are from spring, especially late February and March, but there are others from December and January. One reason for its relative scarcity at light in autumn is that it comes to sugar and blossom rather than to light at that season (Lorimer, 1983).

**Oviposition site:** Not stated.

**Larval microsites:** On trees and shrubs, later sometimes on herbs.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding from May to June or early July on the flowers and leaves of a range of deciduous trees and shrubs, including *Quercus*, *Betula* and *Ulmus* spp.; towards the end of this period it may descend to feed on herbaceous plants. After several weeks resting in a subterranean cocoon it pupates there in August. Overwintering as an imago.

**Effectiveness of different sampling methods:** The adults come to light, but according to Lorimer (1983), are more strongly attracted to sugar, and also come to ivy-blossom, berries and fruit.

**Range:** Widely distributed over Ireland, especially in wooded areas, but also apparently absent from many areas. In Britain the species is widely distributed, and common over much of England and Wales, extending northwards in Scotland to Caithness and the Inner Hebrides; also occurring on the Isle of Man. Generally distributed over most of Europe, but unrecorded from Albania, European Turkey and the Mediterranean islands other than Sicily; extending to about 64°N in central Fennoscandia.

**Status:** Resident.

**Conservation:** This species is not considered in need of protection in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Cosmia affinis*

**Species name:** *Cosmia affinis* (Linnaeus, 1767) (*Noctua (Phalaena)*). English Name: LESSER-SPOTTED PINION.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Calymnia affinis/Cosmia affinis*).

**Macrohabitats:** Hedges and urban parks.

**Adult microsites:** "Rests concealed by day, and may sometimes be beaten out of the foliage of elm" (Goater, 1983).

**Flight Period:** Insufficient data for Ireland; for Britain Goater (1983) gives July, while Emmet (1991) indicates July and August, and Skinner (1998) has "mid-July to late August".

**Oviposition site:** Not indicated, but presumably on the bark of the foodplant.

**Larval microsites:** On the foliage of trees.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Feeding on the foliage of *Ulmus* spp., but sometimes also attacking and consuming other lepidopterous larvae, hiding

among the leaves by day, April to June; pupating in a cocoon amongst litter in June. Overwintering as an ovum.

**Effectiveness of different sampling methods:** Not known in Ireland; reported to come to sugar, honey-dew and light elsewhere (Goater, 1983).

**Range:** A single specimen recorded at Howth, Co. Dublin on 11<sup>th</sup> July 1983 by Hart (1893) appears to be the only confirmed Irish record of this species. This specimen is in the Hart collection in NMI. Baynes (1964) considered that the Irish status of this species needed confirmation. The absence of further records for over a century is probably due to lack of recording, but there is also the possibility that the loss of elm, *Ulmus* spp., due to Dutch elm disease may have led to its extinction. In Britain it has been found mainly in the south and east, with isolated colonies extending to Cumbria and North Wales, but it has suffered a decline in recent decades. It extends from Southern Europe to southern extremities of Fennoscandia, but is unrecorded from Albania and Turkey.

**Status:** Uncertain, probably a former resident, possibly extinct.

**Conservation:** If this species still occurs in Ireland, it is at threat from the effects of Dutch elm disease.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Cosmia trapezina*

**Species name:** *Cosmia trapezina* (Linnaeus, 1758) (*Noctua (Phalaena)*). English Name: THE DUN-BAR.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *trapetzina* misspelling; *rufa* (Tutt, 1902).

Subspecific status: None

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Calymnia trapezina*).

**Macrohabitats:** Mature and sapling *Quercus*/*Fraxinus*/*Corylus* and acidophilous *Quercus* forests; scattered *Quercus* and *Salix* trees; hedges and urban parks.

**Adult microsites:** Can be found by day, resting on fallen leaves, especially after rain, from which Goater (1983) concludes that its usual habit is to rest beneath the leaves, which it abandons after flooding.

**Flight Period:** Late July to early September.

**Oviposition site:** Not indicated; laid "in small, compact batches and covered with scales from the anal tuft of the female" (Goater, 1983), presumably on the bark of the foodplant.

**Larval microsites:** On the foliage of trees.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Feeding on *Ulmus* spp., but also on various other trees, including *Ilex aquifolium*; Skinner includes *Quercus* spp., *Betula* spp., *Corylus avellana*, *Crataegus monogyna*, *Salix* spp. and *Acer* spp.; April and May; pupating in a cocoon

in litter or just below the surface of the soil. The larva is also a well-known predator on other lepidopterous larvae, and may sometimes be cannibalistic. Overwintering as an ovum.

**Effectiveness of different sampling methods:** Taken regularly in small numbers at light-traps; Goater (1983) also reports it as frequent at sugar and honey-dew.

**Range:** Although described by Baynes (1964) as “common and widely distributed” in Ireland, there are very few records from western parts, and no records have been traced from Kerry, West Galway or Mayo. Widespread and common over England and Wales, extending more locally northwards to northern Scotland. Recorded from all mainland European countries, extending northwards to central Scandinavia and Finland. It is also recorded from Corsica, Sardinia and Sicily.

**Status:** Widespread resident, except perhaps in parts of the west.

**Conservation:** Although this species seems to have remained common over much of Ireland, it does appear to have undergone some recent decline, however, as it feeds on other tree species in addition to elm (*Ulmus* spp.) it appears to be less under threat than the obligate elm-feeders.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Craniophora ligustri*

Species name: *Craniophora ligustri* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: THE CORONET.

**Nomenclature:** Acronictinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Acronycta/Craniophora ligustri*).

**Macrohabitats:** *Quercus/Fraxinus/Corylus* & *Fraxinus* forests; hedges and urban parks.

**Adult microsites:** “Usually rests by day on a tree-trunk or post” (Lorimer, 1983).

**Flight Period:** Late June to late July.

**Oviposition site:** On the foliage of the foodplant, usually on the underside of the leaf; laid singly.

**Larval microsites:** On trees, rarely on tall shrubs; on the foliage.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally in August and September on the foliage of *Fraxinus excelsior*, occasionally also on *Ligustrum vulgare*, *Alnus glutinosa* and *Corylus avellana*. The larva rests by day along the midrib of the underside of a leaf, usually pupating in a cocoon under moss on an ash-trunk; overwintering there.

**Effectiveness of different sampling methods:** The few records of adults are from mercury-vapour light-traps; Lorimer (1983) reports that in Britain they are also attracted to sugar.

**Range:** Very local, mainly confined to co. Galway, from Connemara eastwards to the area around Lough Corrib; also known from the south-eastern Burren and from near Ennis, both co. Clare. Otherwise known from only Ballybrado, South Tipperary and Crom Estate, Co. Fermanagh, with a historical record from co. Antrim. Widely distributed but local over Britain, northwards to Inverness-shire and the Inner Hebrides (Mull) and with an isolated record from the north coast of the Scottish mainland. Not recorded from the Isle of Man. Recorded from all mainland European countries, apart from European Turkey, from central Sweden southwards, and known from most of the Mediterranean islands.

**Status:** Very local resident.

**Conservation:** Although very local, it appears to be under little threat as its main foodplant is unthreatened.

**Compiler:** K. G. M. Bond. Date of compilation: 6<sup>th</sup> February 2006.

### *Cryphia domestica*

Species name: *Cryphia domestica* (Hufnagel, 1766) (*Phalaena*). English Name: MARBLED BEAUTY.

**Nomenclature:** Bryophilinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *perla* (Denis & Schiffermüller, 1775).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Bryophila perla*).

**Macrohabitats:** On old walls (in Britain, and possibly parts of the north of Ireland this species appears to have a much wider ecological range).

**Adult microsites:** "Rests by day, usually on a wall rather than a fence or tree-trunk and is by no means always well concealed" (Lorimer, 1983).

**Flight Period:** Early July to mid-August.

**Oviposition site:** On stone walls; close to lichens.

**Larval microsites:** On epiphytic plants on walls or rocks; hiding by day in a silk and grit tunnel among the foodplant.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds in September and again in April and May following diapause on lichens, especially *Lecidea confluens*, also on *Xanthoria parietina*, on stone walls. It overwinters in a silk and grit tunnel, and continues to use this as a shelter in the spring, emerging at night to feed. It pupates about the beginning of June in the enlarged, blister-like hibernaculum. Overwintering as a small larva.

**Effectiveness of different sampling methods:** Adults have been taken at mercury-vapour light-traps and at domestic lights; they have also been found on rocks and urban walls. They can also be found at flowers after dusk, and to a lesser extent at sugar (Lorimer, 1983).

**Range:** Very local, found mainly on and near the east coast in cos. Down, Dublin and Wicklow; apparently most common in the eastern suburbs of Belfast and Dublin; also extending inland from north Down to north co. Armagh, and found at a few sites on the north coast of Northern Ireland and in the north and east of co. Wexford. Elsewhere, there are only isolated, mainly historical, records from cos Cork, Limerick and Galway. In the light of its currently known distribution it seems remarkable that Kane (1901) described it as “common and widely distributed”, but does admit to finding “two specimens only” at an undisclosed location in co. Cork in spite of intensive searching there; while Donovan (1936) states “common and widely distributed . . . the type is frequent in the south” [!], but does not mention any localities in the south. Widely distributed and often common over England and Wales; local in southern Scotland, extending locally to the southern Highlands, and occurring on the coast in Aberdeenshire and Morayshire. Generally distributed over central and southern Europe, apart from Albania and European Turkey, but extending to only the south of Norway and Sweden, and absent from Finland and the Baltic states.

**Status:** Very local resident.

**Conservation:** This species appears to be under relatively little threat, although air pollution probably had a deleterious affect on its foodplants in suburban Dublin up to the 1980's.

**Compiler:** K. G. M. Bond. Date of compilation: 9<sup>th</sup> February 2006.

### *Cryphia muralis*

Species name: *Cryphia muralis* (Forster, 1771) (*Phalaena*). English Name: MARBLED GREEN.

**Nomenclature:** Bryophilinae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *lichenis* (Fabricius, 1775); *lichenes* misspelling; *glandifera* (Denis & Schiffermüller, 1775); *obscura* (Tutt, 1902).

**Subspecific status:** None recognised by Lorimer (1983) or in other recent publications, but Cockayne & Williams (1956) described subsp. *westropi* from specimens taken near Cork City. This is described as “rather small (22-30mm), with more or less the normal range of colour variation, although the yellow shades are pale, the greens often grey-tinged and there are no rich browns” (Lorimer, 1983). Forms of *C. muralis* occurring in Co. Kerry are described by Huggins (1962).

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Bryophila glandifera (muralis)/muralis (glandifera)*).

**Macrohabitats:** On old walls and vegetated sea-cliffs.

**Adult microsites:** The adult rests by day on lichen-covered walls and rocks.

**Flight Period:** Late July to about the end of August.

**Oviposition site:** On walls or rocks, laid in small batches close to lichens.

**Larval microsites:** On epiphytic plants on walls or rocks; hiding by day and in dry weather in a crevice or a silken tube.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding in autumn, and again after diapause, in April to May on lichens on rocks, walls and roofs, in particular on *Diploicia canescens*, and reportedly rarely on lichens on trees. It is reported to feed only when the lichens are damp, hiding by day and in dry weather in a crevice or tube of lichen and silk, in which it pupates towards the end of May. Overwintering as a small larva.

**Effectiveness of different sampling methods:** The adults are attracted to light, but can also sometimes be found by day on urban walls.

**Range:** Known only from four counties: Co. Cork, where it has regularly been found in parts of Cork City, and in coastal areas from Ballycotton westwards to about Clonakilty; Co. Kerry (Dingle area and Killarney); Co. Waterford (Clonmel and Dungarvan), and Co. Galway (Galway City). The species seems to be locally common in some parts of Cork City, such as Blackrock, where limestone walls are prevalent. Local and largely coastal over southern England south of the Thames, and South Wales, with isolated colonies in Cambridgeshire, Gloucestershire and North Wales. Widely distributed, but mainly coastal in southern Europe, absent from Denmark and Fennoscandia, apart from a transitory occurrence in southern Sweden; also absent from Poland, the Czech Republic, the Baltic States and European Turkey.

**Status:** Very local resident.

**Conservation:** The Irish status of this species appears to be stable; but replacement of limestone walls by concrete could pose a threat.

**Compiler:** K. G. M. Bond. Date of compilation: 9<sup>th</sup> February 2006.

### *Cucullia absinthii*

Species name: *Cucullia absinthii* (Linnaeus, 1761) (*Phalaena* (*Noctua*)). English Name: THE WORMWOOD.

**Nomenclature:** Cuculliinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *absynthii* misspelling.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Cucullia absinthii/absinthii*).

**Macrohabitats:** Coastal *Ammophila* dunes; saltmarsh scrub.

**Adult microsites:** "Occasionally found at rest on fences by day" (Lorimer, 1983)

**Flight Period:** According to Lorimer, (1983) the adult flies from early July well into August.

**Oviposition site:** On buds of the foodplant.

**Larval microsites:** On low-growing plants of the herb layer; on immature seeds, more rarely on buds or flowers.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds mainly on the immature seeds, but sometimes on the buds and flowers of *Artemisia absinthium* and *A. vulgaris* in July and August. It pupates in October and overwinters, usually among surface debris, but sometimes well below ground. According to Lorimer (1983), emergence of the imago may be delayed until the second or even the third year after pupation.

**Effectiveness of different sampling methods:** "Comes freely to flowers, especially of red valerian . . . in much smaller numbers to light" (Lorimer, 1983).

**Range:** Only known from old records from the Co. Cork coast (Old Head of Kinsale, Ummera near Timoleague and Roches Point) (Baynes, 1964), apart from a post-1960 10km record from the south Wexford coast shown in Heath & Emmet (1983). In Britain it has expanded its range in recent years; although originally recorded from London, it was entirely coastal until 1946, but has since become widely scattered in the English East Midlands and Southeast. Widely distributed in Europe, but absent from Portugal and some Balkan countries, extending northwards to Denmark and southern Fennoscandia.

**Status:** Very scarce resident, possibly extinct.

**Conservation:** This species is subject to any threat to its remaining saltmarsh habitats.

**Compiler:** K. G. M. Bond. Date of compilation: 22<sup>nd</sup> November 2005.

### *Cucullia chamomillae*

Species name: *Cucullia chamomillae* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: CHAMOMILE SHARK.

**Nomenclature:** Cuculliinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *fissina* (Haworth, 1809); *fiscina* misspelling; *chrysanthemi* (Hübner, 1822).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Cucullia chamomillae*).

**Macrohabitats:** Old walls, fallow land.

**Adult microsites:** The adult rests head upward by day, often on palings or tree-trunks (Lorimer, 1983).

**Flight Period:** From about mid-April to mid-May.

**Oviposition site:** On stems of the foodplant, laid singly.

**Larval microsites:** On low-growing plants of the herb layer; on the flower heads of the foodplant.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding in June and July (May and June – Lorimer) on the buds and flowers of various Compositae, amongst which are *Chamaemelum nobile*, *Anthemis arvensis*, *A. cotula*, *Matricaria recutita*, *Tripleurospermum maritimum*



and *Tanacetum parthenium*; initially only feeding nocturnally, but when larger the larva feeds by day as well. Pupating in a large very strong subterranean cocoon of silk and soil in August; it overwinters here; sometimes more than once.

**Effectiveness of different sampling methods:** "Frequently taken at mercury-vapour light" (Lorimer, 1983); also feeds at various flowers, but does not come to sugar.

**Range:** Very local and almost entirely coastal in Ireland. There are few recent records, and these are from southern and eastern coastal sites. In Britain it is widely distributed, especially in the southeast and east of England, becoming scarce and local from Cumbria northwards, extending somewhat north of Glasgow. Widespread in Europe, but absent from high latitudes, extending only to southern Sweden and southernmost Norway.

**Status:** A very local and almost entirely coastal species.

**Conservation:** This species is vulnerable to any disturbance of the coastal sites in which its foodplants occur.

**Compiler:** K. G. M. Bond. Date of compilation: 23<sup>rd</sup> November 2005.

### *Cucullia umbratica*

Species name: *Cucullia umbratica* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: THE SHARK.

**Nomenclature:** Cuculliinae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *tanaceti* sensu Haworth, 1809; *lucifuga* sensu Haworth, 1809.

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Cucullia umbratica*); and by Lorimer, (1983: 50).

**Macrohabitats:** Dry calcareous grassland; coastal grey dunes; fallow land; saltmarsh scrub.

**Adult microsites:** By day the moth can be found with tightly folded wings on fences, posts and tree-trunks (Lorimer, 1983).

**Flight Period:** Usually from about the middle of June to the end of July; exceptionally as early as the end of May and as late as early August. For Britain, Lorimer gives the flight season as mid-June to August.

**Oviposition site:** "Laid singly on the foodplant" (Lorimer, 1983).

**Larval microsites:** On low-growing plants of the herb layer; on the flowers

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeds nocturnally from late July to September or October mainly on *Sonchus* spp., but also on various other Compositae, including *Crepis*, *Hieracium*, and *Lactuca* spp. According to Lorimer (1983), the young larva is quite tolerant of light for a few days. Pupating in November in a strong subterranean cocoon and overwintering there.

**Effectiveness of different sampling methods:** Regularly taken at light, especially at mercury-vapour traps.

**Range:** Widely distributed over Ireland, and fairly common in some areas, but in the extreme north and northwest it seems to be restricted to a small number of coastal sites. Generally distributed in Britain and the Isle of Man, but common only in the south, and quite local in Scotland northward to Orkney. Generally distributed over Europe, but absent from the Mediterranean islands, and extending northwards as far as southern Norway and central Sweden.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 1<sup>st</sup> February 2006.

### *Dasypolia templi*

Species name: *Dasypolia templi* (Thunberg, 1792) (*Noctua*). English Name: BRINDLED OCHRE.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Dasypolia templi*).

**Macrohabitats:** Dry non-calcareous grassland; vegetated sea-cliffs.

**Adult microsites:** "The overwintering females hibernate in rocky outcrops, drystone walls or even houses" (Lorimer, 1983).

**Flight Period:** Late September to about early November; the females reappearing in spring.

**Oviposition site:** On old stems or young leaves of the foodplant; laid singly or in small batches.

**Larval microsites:** On herbs; in the stems, later in the roots.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeds mainly on *Heracleum sphondylium*, but probably also on *Angelica sylvestris* and possibly other Umbelliferae, from May to July or early August. The young larva burrows into a stem or leaf and then burrows downwards into the root-crown where it completes its growth. It then leaves the foodplant to pupate among or slightly below grass-roots. Overwintering as an imago (females only; Skinner (1998)).

**Effectiveness of different sampling methods:** Taken regularly at light-traps, but, according to Lorimer (1983) the adult does not feed.

**Range:** Rare, and mainly confined to the coast. There are scattered records from the north and east coasts, and more recently from Tramore on the south coast and from Co. Mayo, on the west coast. There are also historical inland records from Mayo and Offaly. In Britain this species is very locally

distributed in England and Wales, but mainly coastal, and almost totally absent from the east and southeast of England. From northern England northwards it also occurs inland and in Scotland it widely distributed, extending to the Inner Hebrides and Shetland. Widespread but local over much of central and southern Europe and totally absent from some countries and the Mediterranean islands; more generally distributed further north and extending almost to the extreme north of Fennoscandia.

**Status:** Very local resident.

**Conservation:** Although the species is of very restricted distribution in Ireland, it seems likely that most of its habitats are not seriously threatened.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Deltote bankiana*

Species name: *Deltote bankiana* (Fabricius, 1775) (*Pyralis*). English Name: SILVER BARRED.

**Nomenclature:** Eustrotiinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *olivana* (Denis & Schiffermüller, 1775); *argentula* (Hübner, 1787); *banksiana* (Doubleday, 1847).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Bankia/Eustrotia argentula*).

**Macrohabitats:** Humid/flooded oligotrophic (gen.) & *Molinia* grassland.

**Adult microsites:** Not indicated.

**Flight Period:** The only record on the *Irish Noctuid Database* is 25<sup>th</sup> June 1995. For Britain, Skinner (1998) states "mid-June to mid-July", while Bretherton has "June and early July".

**Oviposition site:** Not stated.

**Larval microsites:** On herb layer plants, mainly on the tussocks of low herbs.

**Food and feeding habitats** (Bretherton, 1983); (Emmet, 1991); (Skinner, 1998): Feeds externally on *Molinia caerulea*, *Poa pratensis*, and possibly other Gramineae; Gustafsson (2004) and Salvela (2004) include *Carex* spp.; August and September, pupating in October in a cocoon near the surface of the soil below crowns of grass-roots, where it overwinters (Buckler, 1893, in Bretherton, 1983).

**Effectiveness of different sampling methods:** The adults fly by day as well as at dusk, but come rarely to sugar and light (Bretherton, 1983).

**Range:** Extremely local, and known only from the area south and southwest of Killarney, Co. Kerry and from near Glengarriff, Co. Cork, where it was again found in 1995. In Britain it is also extremely local, being known from only some fens in Cambridgeshire and one coastal marsh in Kent. In the past it was more widely distributed in East Anglia. It is widely scattered over central

and eastern Europe, extending to southern and eastern parts of Fennoscandia, but it also occurs locally in northwest Spain; and in most Balkan countries, but it is not recorded from Albania, European Turkey and the Mediterranean islands.

**Status:** Resident, confined to extreme southwest.

**Conservation:** Although the distribution of this species appears to have been stable over long periods, its present status should be more closely monitored. Much of its Irish distribution lies within Killarney National Park.

**Compiler:** K. G. M. Bond. Date of compilation: 8<sup>th</sup> February 2006.

### *Deltote uncula*

Species name: *Deltote uncula* (Clerck, 1759) ([*Phalaena*]). English Name: SILVER HOOK.

**Nomenclature:** Eustrotiinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *uncana* (Linnaeus, 1761); *unca* (Denis & Schiffermüller, 1775).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Hydrelia/Eustrotiinae unca (uncula)/uncula*).

**Macrohabitats:** Humid eutrophic flooded & non-flooded grassland; rich fen/fen-sedge beds; tall *Carex* sedge beds.

**Adult microsites:** Not indicated precisely, but Bretherton (1983) states that the moth flies freely when disturbed, usually from bushes or rushes. More than half the observations on the Irish Noctuidae Database are diurnal.

**Flight Period:** Late May to late July. For Britain, Bretherton (1983) gives end of June to August, but by contrast Skinner (1998) has "late May to early July", with an occasional second generation in August. Kane refers to a record of a second brood in Louth in 1894 in ". . . a very hot summer".

**Oviposition site:** Not indicated.

**Larval microsites:** On tussocks of grasses and sedges.

**Food and feeding habitats** (Bretherton, 1983); (Emmet, 1991); (Skinner, 1998): On *Carex sylvatica* and other *Carex* spp., also on *Deschampsia cespitosa* and other Gramineae; late July to early September, then pupating in a subterranean cocoon made of earth and leaf fragments (Bretherton, 1983). Overwintering as a pupa.

**Effectiveness of different sampling methods:** Although adults have sometimes been taken at mercury-vapour light-traps, there are more often seen on marsh and fen vegetation by day.

**Range:** Local, but widely distributed in wetlands over Ireland, and common in many areas, such as parts of Kerry, and the turlough area of southeast Galway. In Britain this species is locally distributed in wetlands, mainly in central-southern England, East Anglia, western Wales and parts

of Northwest England, also locally in Lincolnshire and Yorkshire. In Scotland it is found in southern parts of Dumfries and Galloway, and again in parts of the western Highlands and on the Isle of Mull. Found very locally on the Isle of Man. In Britain this species is confined to Wicken and Chippenham Fens in Cambridgeshire, but prior to 1850 it was also known from fens in Huntingdonshire and Norfolk. Generally distributed in central Europe, from central France to the extreme south of Scandinavia, but present over most of Finland; occurring in most Balkan countries, but absent from Albania, European Turkey and the Mediterranean islands.

**Status:** Local resident.

**Conservation:** The Irish status of this species appears to be stable, but it is clearly vulnerable to losses of its wetland habitats.

**Compiler:** K. G. M. Bond. Date of compilation: 8<sup>th</sup> February 2006.

### *Diachrysia chrysitis*

Species name: *Diachrysia chrysitis* (Linnaeus, 1758) (*Phalaena (Noctua)*). English Name: BURNISHED BRASS.

**Nomenclature:** Plusiinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *tutti* sensu auctt.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Plusia chrysitis*).

**Macrohabitats:** Tall-herb forest clearings; lightly-grazed improved grassland; fallow land & field margins.

**Adult microsites:** Not indicated.

**Flight Period:** From about mid-June to late August. Two south-coast autumnal records probably indicate an occasional second generation. In southern England it has two flight seasons, in June and August, with a very small third emergence in October, while further north it flies in July and August. The Irish flight pattern, although prolonged, does not indicate two peaks of abundance.

**Oviposition site:** On the leaves of the foodplant, laid singly.

**Larval microsites:** On tall herbs and low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally, mainly on *Urtica dioica*, but sometimes also on *Lamium* spp., *Galeopsis tetrahit*, *Arctium minus*, and *Cirsium vulgare*, and in gardens on *Mentha spicata* and *Achillea* spp. From autumn to about the following May; pupating after spinning a cocoon. There is no indication of a substantial second generation, as found in southern England, with larvae in July and August. Overwintering in larval diapause that lasts from about November to March.

**Effectiveness of different sampling methods:** The adults appears regularly at light-traps, but can occasionally also be found by day on vegetation. It is also reported to come to flowers after dusk, but not to sugar (Lorimer, 1983).

**Range:** Generally distributed over Ireland and common in many areas. Widespread and common throughout Britain and the Isle of Man, apart from Shetland. Lorimer (1983) suggests that its increase and spread northwards is due to increased nettle growth due to agricultural application of nitrogen. Generally distributed over Europe, apart from Crete; extending north to central Norway and central Sweden.

**Status:** Common resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

### *Diarsia brunnea*

Species name: *Diarsia brunnea* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: PURPLE CLAY.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as [unnamed genus]/*Diarsia brunnea*).

**Macrohabitats:** In *Betula* woodland on saplings; on scattered trees (*Betula*); in tall-herb and grassy forest clearings.

**Adult microsites:** Not known, "rests concealed by day" (Goater, 1979).

**Flight Period:** Mid-June to early August, but occasionally recorded in mid- or late August. For Britain, Goater (1979) indicates June and July.

**Oviposition site:** Not indicated.

**Larval microsites:** On the foliage of trees, shrubs and herbs.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally from September to the following April; before diapause on many forbs, but especially on *Rumex* spp.; in spring on *Rubus fruticosus* agg., *Salix* spp., *Betula* spp., *Luzula sylvatica*, *Pteridium aquilinum*, *Vaccinium myrtillus*, etc. Pupating in May in a subterranean cocoon.

**Effectiveness of different sampling methods:** Found commonly at light-traps, also reported to come to sugar (Goater, 1979).

**Range:** Widely distributed over Ireland and common in many parts. Widespread in Britain and common in many parts, as far north as the Outer Hebrides and Orkney. Generally distributed over

most of western and southern Europe, but not recorded from the Mediterranean islands, and in the Balkans found only in Romania and Bulgaria; extending to southern and central Fennoscandia.

**Status:** Resident.

**Conservation:** This species is not considered in need of protection in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.

### *Diarsia dahlii*

Species name: *Diarsia dahlii* (Hübner, 1813) (*Noctua*). English Name: BARRED CHESTNUT.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *dahli* misspelling; *erythrocephala* sensu Haworth, 1809; *candelisequa* sensu Stephens, 1829; *rufa* (Tutt, 1902).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as [unnamed genus]/*Diarsia dahlii*).

**Macrohabitats:** On saplings in acidophilous *Quercus* forests; on *Betula* saplings and on scattered *Betula* and *Salix*; in tall-herb and grassy forest clearings.

**Adult microsites:** Not indicated, "rests concealed and is seldom if ever seen by day" (Goater, 1979).

**Flight Period:** Early or mid-August to late September.

**Oviposition site:** Unknown.

**Larval microsites:** On low forbs, shrubs and trees, on the foliage.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeding on *Rumex* and *Plantago* spp. before overwintering diapause; after which it feeds on young shoots of *Salix* and *Crataegus* spp., also on *Rubus fruticosus* agg. (Goater, 1979). Emmet (1991) and Skinner (1998) also list *Betula* spp. and *Vaccinium myrtillus* as foodplants. Pupating in May in a subterranean cocoon.

**Effectiveness of different sampling methods:** Comes to light-traps, also reported to come to flowers and sugar (Goater, 1979).

**Range:** A local species, apparently absent from extensive areas, such as much of the south. Among the areas where it is relatively common are Co. Down, northeast Donegal, and around Lough Corrib, Co. Galway. There are also a few recent records from East Wicklow. Fairly common on acid soils from the English midlands northwards and westwards to the north of the Scottish mainland; but scarce and very local in the south and east of England. Widely distributed from France eastwards through central Europe, but absent from Iberia and the Mediterranean islands, and in the Balkans extending to only Romania; in Fennoscandia extending to about Trondheim in Norway, but to northernmost Sweden and northern Finland.

**Status:** Local resident.

**Conservation:** This species is vulnerable to loss of scrub woodland and insensitive cutting of hedges.

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.

### *Diarsia mendica*

Species name: *Diarsia mendica* (Fabricius, 1775) (*Noctua*). English Name: INGRAILED CLAY.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *festiva* (Denis & Schiffermüller, 1775); *primulae* (Esper, 1788); *subrufa* (Haworth, 1809); *conflua* (Treitschke, 1827).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as [unnamed genus] *festiva*)/*Diarsia festiva (conflua)*).

**Macrohabitats:** Forest macrohabitats (*Betula* woodland and scattered *Betula* and *Salix*, tall herb and grassy clearings; dry siliceous heath; hedges and field margins.

**Adult microsites:** Not indicated.

**Flight Period:** From about mid-June to the end of July, peaking about the beginning of July; rarely as early as the beginning of June or as late as early August.

**Oviposition site:** Not indicated.

**Larval microsites:** On low shrubs, hibernating in herb-layer litter.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeding in autumn and again after winter diapause on a wide range of forbs and shrubs and smaller trees, of which Goater (1979) specifically mentions *Primula vulgaris*, *Rubus fruticosus* agg., *Crataegus* spp., *Salix* spp., *Vaccinium myrtillus*, *Betula* spp., and *Calluna vulgaris*. Pupating in a subterranean cocoon in May.

**Effectiveness of different sampling methods:** Found commonly at light-traps; also reported from honey-dew, flowers and sugar; adults have been seen flying in sunshine at high altitudes (Goater, 1979).

**Range:** Widely distributed and fairly common in most areas of Ireland. Common throughout Britain, extending to the Shetlands; it occurs in deciduous woodland in the south, but also on moorland in the north (Goater, 1979). Generally distributed over Europe, apart from Portugal, European Turkey and the Mediterranean islands; extending to all parts of Fennoscandia and also reported from Iceland.

**Status:** Resident.

**Conservation:** This species is not considered in need of protection in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.



***Diarsia rubi***

Species name: *Diarsia rubi* (Vieweg, 1790) (*Phalaena* (*Noctua*)). English Name: SMALL SQUARE-SPOT.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *bella* (Borkhausen, 1792); *punicea* sensu Haworth, 1809.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as [unnamed genus] *rubi*/*Diarsia rubi*).

**Macrohabitats:** Unimproved grassland; coastal grey dunes, machair and dune-slacks; in field margins.

**Adult microsites:** Not indicated.

**Flight Period:** In two generations, from about mid-May to the beginning of July, and from about the end of July to mid-September, but occasionally extending into late September, or even late October, as in 1989. There is no firm evidence for the existence of a univoltine population in Ireland, as occurs in northern Britain; occasional adults recorded in mid-July appear to be late individuals occurring in years of unfavourable weather, or at higher altitudes.

**Oviposition site:** Not indicated.

**Larval microsites:** On the foliage of trees, shrubs and herbs.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeding from September to May, with winter diapause; and in June and July, on a wide range of shrubs and forbs, of which Goater (1979) specifically mentions *Calluna vulgaris*, *Taraxacum* agg. and *Rumex*, *Stellaria* and *Plantago* spp.; feeding externally in June-July and from autumn to spring, with winter diapause. Pupating in April and again in July in a subterranean cocoon.

**Effectiveness of different sampling methods:** Found commonly at light-traps; according to Goater (1979) also comes to sugar.

**Range:** Common generally, and often abundant. The only area where it appears to be somewhat local is in counties Antrim and Derry, where according to Thompson & Nelson (2002) is largely confined to coastal areas. Common in England to south Cumbria and Tyneside, Wales and the Isle of Man. In the far north of England and Scotland, including Shetland, the bivoltine *D. rubi* is almost entirely replaced by the univoltine form, or species, *Diarsia florida* (F. Schmidt, 1859). Widespread in continental Europe, absent from only Portugal, Albania, Greece and European Turkey as well as the Mediterranean islands; extending northwards to beyond the Arctic Circle in Sweden, and further north than the closely related *D. florida*.

**Status:** Resident.

**Conservation:** This species is not considered in need of protection in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 31<sup>st</sup> January 2006.

***Dichonia aprilina***

Species name: *Dichonia aprilina* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: MERVEILLE DU JOUR.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *runica* (Denis & Schiffermüller, 1775)

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Agriopis/Griposia aprilina*).

**Macrohabitats:** Mature and overmature *Quercus/Fraxinus/Corylus* & acidophilous *Quercus* forests; alluvial hardwood forest; scattered *Quercus*; urban parks.

**Adult microsites:** Not indicated.

**Flight Period:** For Northern Ireland Thompson & Nelson (2002) give early September to late October, but from mid-October in southern England (Lorimer, 1983).

**Oviposition site:** On branches, or in trunk cavities of the foodplant.

**Larval microsites:** On trees; on the foliage.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds from March to June, initially on the buds, later on the flowers and finally nocturnally on the foliage of *Quercus* spp.; pupating in a subterranean cocoon in July, fairly near the surface and usually in the main roots of an oak-tree (Lorimer, 1983); overwintering as an ovum.

**Effectiveness of different sampling methods:** The moth feeds at ivy-blossom and berries and comes abundantly to both sugar and light (Lorimer, 1983).

**Range:** Widely distributed over Ireland, but local and largely confined to mature oakwoods. It seems to be most often recorded in Ulster and east Wicklow; there are relatively few records from the south. Widely distributed over Britain, but largely confined to oak woodland, becoming scarcer northwards, in Scotland extending locally to Ross-shire and the Inner Hebrides; also found very locally on the Isle of Man. Generally distributed over southern and central Europe and most of the Mediterranean island, but not recorded from Albania or European Turkey, extending in Fennoscandia with its foodplant to about 60°N.

**Status:** Local resident.

**Conservation:** This species is dependent on the preservation of stands of mature oak woodland.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

***Dryobotodes eremita***

Species name: *Dryobotodes eremita* (Fabricius, 1775) (*Noctua*). English Name: BRINDLED GREEN.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *protea* (Denis & Schiffermüller, 1775).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Hadena/Dryobotodes protea*).

**Macrohabitats:** *Quercus/Eraxinus/Corylus* & acidophilous *Quercus* forests; alluvial hardwood forest; scattered *Quercus*; urban parks.

**Adult microsites:** Not indicated.

**Flight Period:** From about the end of August to late October. For Britain, Emmet (1991) gives August and September, while Lorimer states “emerges from mid-August to late September, slightly earlier in northern Scotland”.

**Oviposition site:** On twigs of the foodplant.

**Larval microsites:** In, and later on the foliage of trees.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding from March to June on *Quercus* spp., initially boring into the leaf-buds, then feeding nocturnally on terminal shoots, but hiding by day in a substantial web, and finally nocturnally on expanded leaves; pupating in a subterranean cocoon in July. Overwintering as an ovum.

**Effectiveness of different sampling methods:** The adult is attracted to light-traps, and, according to Lorimer (1983) also to flowers, overripe berries and sugar.

**Range:** Local, and largely confined to oakwoods in the north and east; but it has been recorded from the Killarney area, and occasionally from the Cork area. Locally distributed in and near oak woodland over England and Wales, becoming scarcer northwards, but extending locally in Scotland to Ross-shire and the Inner Hebrides, also found locally in the Isle of Man. Generally distributed over Europe, apart from Albania and some Mediterranean islands; extending to about 60°N in Fennoscandia.

**Status:** Local resident.

**Conservation:** This species is dependent on the preservation of stands of mature oak woodland.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

***Earias clorana***

Species name: *Earias clorana* (Linnaeus, 1761) (*Phalaena (Tortrix)*). English Name: CREAM-BORDERED GREEN PEA.

**Nomenclature:** Eariadinae: Nolidae: Lepidoptera: Insecta.

Synonymy: *chlorana* misspelling.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce & Beirne (1938) (as *Earias chlorana*).

**Macrohabitats:** Softwood alluvial forest; fen carr.

**Adult microsites:** "The adult rests by day among the leaves, or occasionally, on the trunk of the foodplant" (Lorimer, 1983).

**Flight Period:** The only Irish record is of two taken in May 1914. For Britain, Skinner (1998) indicates late May to July and Lorimer (1983) gives May and June.

**Oviposition site:** Not stated.

**Larval microsites:** On trees, usually concealed, on the terminal shoots.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds, usually fully concealed, in the terminal shoots of various species of *Salix*; those specifically mentioned by Lorimer (1983) are *S. viminalis*, *S. alba*, *S. triandra*, *S. repens* and *S. caprea*; July to August; then pupating in a strong boat-shaped cocoon attached by silk to a stem or twig of the foodplant. Overwintering as a pupa.

**Effectiveness of different sampling methods:** According to Lorimer (1983) the moth flies from dusk and comes to both sugar and light.

**Range:** In Ireland only known from the Coomarkane Valley, near Glengarriff, in West Cork, where two specimens were taken by H. C. Huggins in May 1914 (Donovan, 1936). This record is not indicated in Emmet (1991). In Britain this species is very local in fens and marshes, mainly in southeast England and East Anglia, with isolated colonies as far west as Somerset, and north to south Yorkshire and Lancashire, and a small area in the Clyde Valley, Scotland. Generally distributed over Europe; unrecorded from only Luxemburg and European Turkey; extending north to the extreme south of Norway, but to about 61°N in Finland, and locally to about 64°N in Sweden.

**Status:** Extremely local resident.

**Conservation:** As this species has not been recorded in Ireland for almost a century, targeted fieldwork should be carried out to determine if it is still present.

**Compiler:** K. G. M. Bond. Date of compilation: 15<sup>th</sup> February 2006.

### *Euclidia glyphica*

Species name: *Euclidia glyphica* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: BURNET COMPANION.

**Nomenclature:** Catocalinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *glyphyca* misspelling.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Euclidia/Ectypha glyphica*).

**Macrohabitats:** Dry calcareous grassland; limestone pavement.

**Adult microsites:** Very active by day when it makes short flights; there is no indication of its nocturnal locations.

**Flight Period:** From early May to about the middle of June, occasionally as early as mid-April. For Britain, Lorimer (1983) indicates "the latter half of June and early July", but Skinner (1998) gives May and June; likewise Emmet (1991).

**Oviposition site:** Ova are laid in small batches on a leaf of the foodplant (Lorimer, 1983).

**Larval microsites:** On low-growing plants of the herb layer

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds nocturnally on *Medicago lupulina*, *M. sativa*, *Trifolium pratense*, *T. repens* and *Lotus corniculatus*. It spends the day stretched out along the stem of a foodplant, and displays the looping behaviour of a Geometrid until about half-grown. July and August, pupating in a cocoon in detritus in September and overwintering as a pupa.

**Effectiveness of different sampling methods:** The adults fly actively by day and are difficult to approach when they land.

**Range:** Local, but common in many limestone districts of the west of Ireland; more local in scattered colonies in the north and a few areas in the east and midlands. There are strong indications that it has declined significantly in the east (cos Dublin and Wicklow) since about 1970. In Britain it is widespread but rather local in central-southern England to Devon, but only scattered elsewhere in England and Wales, occurring only very locally in southern Scotland and the Isle of Man. Generally distributed over Europe apart from European Turkey and some Mediterranean islands; extending to the far north of Sweden.

**Status:** Local resident, declining in some areas.

**Conservation:** Although the species remains widespread in the limestone areas of the west, its decline in the midlands and east is a cause of concern.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

### *Euplexia lucipara*

Species name: *Euplexia lucipara* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: SMALL ANGLE SHADES.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *dubia* (Hufnagel, 1766); *britannica* Turner, 1943; *brittanica* misspelling.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Euplexia lucipara*).

**Macrohabitats:** Tall herb and grassy forest clearings; coastal grey dunes.

**Adult microsites:** Rests cryptically by day with the wings longitudinally plicate, resembling a cluster of dead and withered leaves but is more often under cover (Goater, 1983).

**Flight Period:** Early June to beginning of August.

**Oviposition site:** Not indicated.

**Larval microsites:** On the foliage of trees, but occasionally on herb layer plants.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally in August and September on *Pteridium aquilinum*, also on other ferns, both wild and cultivated, and on *Betula*, *Salix*, *Quercus* and *Ilex* spp., also on "willowherb" (Skinner, 1998) and occasionally other herbaceous plants. Pupating in a subterranean cocoon in October and overwintering there.

**Effectiveness of different sampling methods:** Regularly found in light-traps, but in only small numbers, also occasionally taken at Malaise Traps. The adults are also reported to come to sugar, honey-dew and the flowers of various species (Goater, 1983).

**Range:** This species is widespread over Ireland, and common in many localities. In Britain it is also common and widespread, extending north to Orkney. It is found throughout continental Europe, northwards to northern Fennoscandia.

**Status:** Widespread and fairly common resident.

**Conservation:** There seems to be little threat to this species, and its associated bracken habitats in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Eupsilia transversa*

Species name: *Eupsilia transversa* (Hufnagel, 1766) (*Phalaena*). English Name: THE SATELLITE.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *satellita* (Linnaeus, 1767); *rufescens* (Tutt, 1892).

Subspecific status: None, although the species varies greatly throughout its range (Lorimer, 1983).

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Scopelosoma satellita*/*Eupsilia transversa* (*satellita*)).

**Macrohabitats:** Mature and sapling *Quercus*/*Fraxinus*/*Corylus*; acidophilous *Quercus* & *Betula* forests; rich-soil scrub; alluvial hardwood forest; scattered *Quercus*, *Salix* & *Betula*; hedges, orchards & ornamental gardens.

**Adult microsites:** Not indicated.

**Flight Period:** From about late September to early winter, and again after overwintering briefly through the spring until about mid-April.

**Oviposition site:** Not stated.

**Larval microsites:** On trees and shrubs; on the foliage.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998); (Salvela, 2004): Polyphagous on a wide range of deciduous trees and shrubs, several being specifically mentioned by Salvela (2004); feeding nocturnally from May to July; initially nibbling small holes in the centre of a leaf, but later spinning a daytime shelter in a terminal shoot; also reputed to feed on other larvae, and even, according to Forster & Wohlfahrt (1971) on aphids. It then rests for 10-12 weeks in a strong subterranean cocoon before pupating about the beginning of August. Overwintering briefly as an adult.

**Effectiveness of different sampling methods:**

**Range:** Kane (1901) describes this species as “generally very uncommon, but somewhat uncertain in distribution”, while Donovan (1936) has “common and generally distributed” and Baynes (1964) writes “moderately common and generally distributed from north to south”. None of these authors indicates any actual localities, and the only records since Baynes are a few from east Wicklow and north-east Wexford in 2004 and 2005, and the north, where it seems to be moderately common in Co. Down, becoming rarer westwards. The largely winter flight period is a likely reason for this species being under-recorded. In Britain it is very generally distributed, and fairly common over much of England and Wales; more local in Scotland, but extending to Orkney and the Inner Hebrides. Generally distributed in central and northern Europe, extending to central Fennoscandia, and also recorded from Iceland; in southern Europe it is unrecorded from Portugal, European Turkey and the Mediterranean islands apart from Sardinia.

**Status:** Local resident.

**Conservation:** The Irish status of this species is poorly known and needs to be monitored.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Euxoa cursoria*

Species name: *Euxoa cursoria* (Hufnagel, 1766) (*Phalaena*). English Name: COAST DART.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *concolor* (Haworth, 1809); *venosa* (Stephens, 1829).

Subspecific status: None

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as [unnamed genus]/*Euxoa cursoria*) and in Goater (1979).

**Macrohabitats:** On coastal dunes, specifically on *Ammophila* dunes, grey dunes & machair.

**Adult microsites:** It apparently rests by day in overhanging tangles of marram roots, from which it has been raked (Goater, 1979).

**Flight Period:** Beginning of August to early September; Emmet (1991) gives late July to September, and adds “much more commonly in some years than in others”.

**Oviposition site:** Not known in the wild; in captivity it is reported that ova are laid in clusters of 40-50 (Stokoe & Stovin, 1958).

**Larval microsites:** On forbs and grasses; spending the day below ground.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991): Feeding in the spring and early summer, nocturnally, on a range of sandhill plants, such as *Honkenya peploides*, *Viola* spp., *Aira praecox* and *Agropyron junceiforme*; pupating in a subterranean cocoon later in June. The overwintering stage is unknown, but Goater (1979) reports that an early larval stage is suspected.

**Effectiveness of different sampling methods:** Although it comes to light, many records of the adult are of specimens taken from flowers, such as those of ragwort and marram.

**Range:** Found in sand-dune locations scattered along the west coast, from Ballinskelligs Bay northwards, also along the north coast, and down the east coast as far as Arklow, Co. Wicklow. Many of these records date back to the 19<sup>th</sup> century, and there is a lack of recent records from many areas. In Britain it is commonest on the coastal sandhills of the north and northwest of Scotland, with isolated colonies in northwest and eastern England and Wales. Local and largely coastal in France, the Benelux countries, Germany and Denmark; also occurring in the Baltic States; in Fennoscandia it is almost entirely coastal, in southern Norway, and around much of the Swedish and Finnish Baltic coast.

**Status:** Very local resident.

**Conservation:** The lack of recent records suggests that this species has been in decline. Its sand-dune habitats should be protected from encroachment by scrub invasion (e.g. by *Hippophae rhamnoides*), golf-course development, etc.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Euxoa nigricans*

Species name: *Euxoa nigricans* (Linnaeus, 1761) (*Phalaena* (*Noctua*)). English Name: GARDEN DART.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Wider range of habitat in Britain?

Synonymy: *fumosa* (Denis & Schiffermüller, 1775); *ruris* sensu Haworth, 1809; *sordida* sensu Haworth, 1809; *dubia* (Haworth, 1809); *marshallana* (Humphreys & Westwood, 1843).

Subspecific status: None.



**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as [unnamed genus]/*Euxoa nigricans*) and in Goater (1979).

**Macrohabitats:** On crops (gen.) & in ornamental gardens.

**Adult microsites:** The daytime location is not indicated.

**Flight Period:** July and August.

**Oviposition site:** Laid in loose batches on the foodplant.

**Larval microsites:** On herb layer plants; spending the day below ground.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991): On various herbaceous and garden plants, including *Trifolium* spp., *Plantago* spp. and Umbelliferae, and has been recorded as destructive to clover. From October onwards, or hatching in spring. Overwintering either as an ovum or in larval diapause; pupating in June in a subterranean cocoon

**Effectiveness of different sampling methods:** Has been taken at light, but reported to be “unpredictable”; also found on flowers and at sugar (Goater, 1979).

**Range:** Although Baynes (1964) describes this species as “generally distributed”, there appear to have been very few recent Irish records, other than a few from Co. Down, Dublin and Wicklow. Over much of the country it seems to be totally unknown, and could at best be described as rare in much of the south, west and midlands. It is much more widespread in Britain, and although commonest in the south and east of England it extends to the north of the Scottish mainland and the Inner Hebrides. Found throughout western, central and southern Europe as far east as Sicily and mainland Italy, also found in the Balkans apart from Albania and European Turkey; extending to about 64°N in Norway, and to about 66°N in Sweden and Finland.

**Status:** Local resident.

**Conservation:** Little is known of the requirements of this species, which would account for the restricted distribution in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Euxoa obelisca*

Species name: *Euxoa obelisca* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: SQUARE-SPOT DART.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *obeliscata* (Haworth, 1809).

Subspecific status: British and Irish specimens belong to subsp. *grisea* (Tutt, 1902) (synonym *stephensi* (Heydemann, 1933)).

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as [unnamed genus]/*Euxoa obelisca*) and in Goater (1979).

**Macrohabitats:** Vegetated sea-cliffs.

**Adult microsites:** Resting concealed by day “presumably among rocks and roots” (Goater, 1979). It is reported to be attracted to ragwort *Senecio jacobaea* and heather bloom.

**Flight Period:** Early August to the end of September.

**Oviposition site:** Unknown.

**Larval microsites:** Not known with certainty, but probably on low growing plants of the herb layer at night, but spending the day in the soil.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991): The foodplant(s) are not known with certainty; forbs, such as *Helianthemum* spp. [not present at Irish locations], and *Galium* spp. are mentioned, while continental authors, e.g. Koopman (2004) give “roots of low plants and of grasses”. November to the following June; pupating in a subterranean cocoon in July. Overwintering as an ovum, or in larval diapause.

**Effectiveness of different sampling methods:** It has been taken regularly at mercury-vapour light-trap, but according to Goater (1979) is also attracted to sugar.

**Range:** Locally distributed on southern and eastern coasts, with isolated, mainly historical, records from northern and western coasts. It is strictly confined to coastal cliffs, and it has probably been overlooked due to the lack of light-trapping in these habitats. In Britain it is locally distributed on southern and western coasts, and in the Isle of Man. It is also recorded very locally from the east coast of Scotland. Generally distributed over Europe, including some of the Mediterranean islands, extending to southern Norway and central Sweden and Finland.

**Status:** Very local resident.

**Conservation:** The sea-cliff habitats of this species are in general under relatively little threat.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Euxoa tritici*

Species name: *Euxoa tritici* (Linnaeus, 1761) (*Phalaena* (*Noctua*)). English Name: WHITE-LINE DART.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *venosus* (Haworth, 1803); *pupillatus* (Haworth, 1803); *pusillus* (Haworth, 1803); *albilinea* ((Haworth, 1809); *lineolata* (Haworth, 1809); *vitta* sensu Stephens, 1829; *aquilina* sensu Stephens, 1829; *hortorum* (Stephens, 1829); *ocellina* sensu Stephens, 1829); *cuneigera* (Stephens, 1829).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as [unnamed genus]/*Euxoa tritici*) and in Goater (1979).

**Macrohabitats:** On coastal grey dunes, machair & dune slacks (in Britain it is much less restricted to coastal dunes).

**Adult microsites:** "Hides by day amongst tangles of overhanging roots on sandhills, etc." (Goater, 1979), but may also fly by day in hot weather.

**Flight Period:** Early August to the end of September. Large numbers have been recorded in late August on sand-dunes in Kerry. Goater (1979) gives July and August as the general flight period in Britain, but reports that Bretherton has found a smaller race flying later, peaking in late August and early September; while Emmet (1991) suggests that the species may emerge as early as June.

**Oviposition site:** In loose batches on the foodplant.

**Larval microsites:** On herb layer plants; spending the day below ground.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): The larval period is uncertain; probably hatching from October onwards, but as late as February, until May or June of the following year, but feeding only in the spring; pupating in a subterranean cocoon in May or June. On various small forbs, of which Goater (1979) specifically mentions the genera *Cerastium*, *Stellaria*, *Spergula* and *Galium*. Overwintering either as an ovum or in larval diapause.

**Effectiveness of different sampling methods:** The adults come readily to light-traps; they are also sometimes found on flowerheads such as those of *Senecio jacobaea* on sand-dunes.

**Range:** Widely distributed around the Irish coast, especially on sand-dunes; having been found in great abundance on the Kerry sand-dunes in late August. There are only scattered inland records from widely separated localities. In Britain it is widespread, extending northwards to Shetland, and although commonest on the coast, is also widespread inland. Generally distributed over mainland Europe and some of the Mediterranean islands, extending to the extreme southeast of Norway, but widespread in the south and east of Sweden and southern Finland.

**Status:** Local resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Gortyna flavago*

Species name: *Gortyna flavago* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: FROSTED ORANGE.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *ochracea* (Hübner, 1786); *lappae* (Donovan, 1801); *ochraceago* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Hydroecia (Gortyna) flavago (ochracea)/Gortyna flavago*).

**Macrohabitats:** Tall-herb forest clearings; humid eutrophic & oligotrophic non-flooded grassland; fallow land & field margins; transition mire.

**Adult microsites:** Not known, but “rests concealed by day” (Goater, 1983).

**Flight Period:** End of August to the beginning of October.

**Oviposition site:** Not stated, but the ovum is probably inserted into the stem of the foodplant.

**Larval microsites:** In the stems of herb-layer plants.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds in the stems of a range of robust forbs, mainly in *Arctium*, *Cirsium* and *Carduus* spp. and *Digitalis purpurea*, but also in *Senecio jacobaea*, *Eupatorium cannabinum*, *Verbascum* spp., *Scrophularia* spp., *Artemisia vulgaris*, *Pulicaria dysenterica*, *Achillea millefolium*, *Angelica sylvestris*, *Aegopodium podagaria*, *Urtica dioica*, and possibly *Solanum tuberosum*. April to August when it pupates without a cocoon in the larval feeding place, usually a few centimetres about ground level (Goater, 1983). Overwintering as an ovum.

**Effectiveness of different sampling methods:** The adults are attracted to light-traps; but according to Goater (1983), not to flowers, honey-dew or sugar.

**Range:** Local but widespread; it appears to be scarce or absent in much of the west and southwest, while it is relatively common in the north of cos Armagh and Down. Widespread in England and Wales, where it is often common. In Scotland it is almost confined to the south and east, extending to near Inverness, and occurring only very locally in the western Highlands. Generally distributed over southern and central Europe, apart from Albania and some Mediterranean islands; extending to the extreme southeast of Norway and to the southern half of both Sweden and Norway.

**Status:** Resident.

**Conservation:** This species does not appear to be under significant threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Graphiphora augur*

Species name: *Graphiphora augur* (Fabricius, 1775) (*Noctua*). English Name: DOUBLE DART.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *helvetina* sensu Knaggs, 1872.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Agrotis/Graphiphora augur*).

**Macrohabitats:** Rich-soil scrub & grassy forest clearings; field margins and hedges.

**Adult microsites:** Not indicated.

**Flight Period:** Late June to early August. For Britain Goater (1979) and Emmet (1991) indicate June and July.

**Oviposition site:** On the foodplant, the precise situation is not indicated; “. . . in large numbers in an orderly array, not quite touching one another” (Stokoe & Stovin, 1958).

**Larval microsites:** On the foliage of trees and shrubs.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): *Crataegus* spp., *Prunus spinosa*, *Betula*, *Salix* and *Ulmus* spp., also occasionally on dock (*Rumex* spp.). Late August to the following spring; the larva enters diapause well before winter, and feeds nocturnally on the opening buds; pupating in a subterranean cocoon in May.

**Effectiveness of different sampling methods:** Comes to light-trap in small numbers; also reported to be attracted to flowers, honey-dew and sugar (Goater, 1979).

**Range:** Widely distributed, but scarce in some areas, and apparently absent from others, for example much of Co. Cork. It seems to be commonest from Dublin through the midlands to East Galway, and in parts of Ulster. Widespread but rather local in Britain, apparently scarce in southwest England, extending northwards to Orkney. Not recorded from the Isle of Man or Outer Hebrides. Generally distributed over western and central Europe from Spain to the Baltic States; found throughout Fennoscandia apart from northern Norway and the extreme north of Sweden; in the Balkans recorded from former Yugoslavia, Romania and Bulgaria.

**Status:** Local resident.

**Conservation:** Although it appears to be absent from certain parts of Ireland, the Irish status of this species appears to be stable.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Hada plebeja*

Species name: *Hada plebeja* (Linnaeus, 1761) (*Phalaena*). English Name: THE SHEARS.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *nana* (Hufnagel, 1766); *dentina* (Denis & Schiffermüller, 1775); *leucostigma* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) (both as *Hada nana*), and by Skinner (1998) (as “*Plebeja nana*”). The terminalia are illustrated in Pierce (1909, 1942) (as *Dianthoecia dentina*/*Hada dentina* (*nana*)).

**Macrohabitats:** Grassy forest clearings; calcareous and non-calcareous unimproved grassland; coastal grey dunes, dune-slacks, machair and vegetated sea-cliffs; field margins.

**Adult microsites:** “May often be found at rest by day on fence-posts and tree-trunks and will feed on flowers in full sunshine” (Lorimer, 1979).

**Flight Period:** Late May to about the middle of July; for Britain, Lorimer (1979) gives late May to early July, with an occasional second brood in the south.

**Oviposition site:** On low-growing plants of the herb layer, laid singly.

**Larval microsites:** On low-growing plants of the herb layer; both above the surface, and in the root zone.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally from July to September, mainly on Compositae, especially *Taraxacum*, *Crepis* and *Hieracium* spp., *Polygonum aviculare* and *Stellaria media*; "probably largely on the roots" (Lorimer, 1979); pupating in October in a slight cocoon in surface litter.

**Effectiveness of different sampling methods:** Has frequently been taken in moderate numbers at light-traps; but also comes to sugar. According to Lorimer (1979) the main period of activity is late dusk when the adult feeds at flowers of campion and wood-sage.

**Range:** Widely distributed, and locally common in some parts of the north, west and southwest. In the west it is most common on limestone and in coastal areas. Widespread and often common over Britain, including the Outer Hebrides and Shetland, also in the Isle of Man. Found throughout mainland Europe, apart from Turkey, to the north of Fennoscandia; also on Corsica; but largely montane in southern Europe.

**Status:** Resident.

**Conservation:** The Irish status of this species appears to be stable.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Hadena bicruris*

Species name: *Hadena bicruris* (Hufnagel, 1766) (*Phalaena*). English Name: THE LYCHNIS.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *bicruis* misspelling; *capsincola* (Denis & Schiffermüller, 1775).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The separation of *H. bicruris* and *H. rivularis* by wing pattern is discussed by Heath (1971a). The terminalia are illustrated in Pierce (1909, 1942) (as *Dianthoecia capsincola/Hadena bicruris (capsincola)*).

**Macrohabitats:** Vegetated sea-cliffs (possibly also locally in gardens, field margins and hedgerows).

**Adult microsites:** Not indicated by day, but found on flowers from early dusk.

**Flight Period:** Chiefly from mid-June to late July, but occasionally into mid-August, at least on the south coast.

**Oviposition site:** Unknown.

**Larval microsites:** On the fruiting bodies of low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): The larva feeds nocturnally on the seeds of most species of *Silene*, *Lychnis* and *Dianthus*, later feeding partly exposed. The last named foodplant genus seems unlikely in Ireland. Its relative scarceness in Ireland may be the result the relative scarceness of *Silene dioica* to Britain; Lorimer (1979) stating that it has an apparent preference for this plant. Feeding from July to early September, pupating in a fragile subterranean cocoon later in September and overwintering therein.

**Effectiveness of different sampling methods:** Comes to light, but not to sugar (Lorimer, 1979).

**Range:** Very local and mainly coastal, apart from the Dublin area and parts of Ulster (Belfast area, north Armagh and Fermanagh) where it seems to be more common. No records have been found for the Midlands or west of Ireland. In the light of the very few recent records it is difficult to understand Baynes' (1964) assertion that this species is "common and widely distributed". It is much more widespread in Britain and the Isle of Man, this may be related to greater abundance of *Silene dioica* there. Generally distributed over southern and central Europe, absent from only Crete and European Turkey; extending to southwestern parts of Norway and Sweden, and only the extreme southwest of Finland.

**Status:** Very local resident.

**Conservation:** Although it is absent or noticeably scarce over much of Ireland, this species does not appear to be under threat.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Hadena caesia*

Species name: *Hadena caesia mananii* (Gregson, 1866) [*caesia caesia* (Denis & Schiffermüller, 1775)] (*Noctua*). English Name: THE GREY.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: British and Irish specimens are referable to subsp. *mananii*. The nominate European subspecies is reported to be "much brighter, with paler ground colour, enlivened with ochreous and yellowish markings in the basal and median areas" (Lorimer, 1979). Within Ireland there is also local variation; while some Irish specimens resemble those from the Isle of Man, and Burren specimens are reported to be more strongly bluish than the Manx ones, a blackish blue form is found in extreme southwest Kerry (Lorimer, 1979).

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Dianthoecia/Hadena caesia*).

**Macrohabitats:** Vegetated sea-cliffs.

**Adult microsites:** Not indicated

**Flight Period:** It appears to have a long flight period from about mid-May to mid-August, possibly representing two broods.

**Oviposition site:** Not stated, but probably on the seeds of the foodplant.

**Larval microsites:** On low-growing plants of the herb layer; initially inside the fruiting bodies, later partly externally on them.

**Food and feeding habitats:** (Myers, 1968); (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally on the seeds of *Silene uniflora* in July to August or early September, possibly in two broods. Lorimer (1979) also includes *S. vulgaris*, while Emmet adds *Saponaria officinalis*. The larva pupates in August or September and overwinters in a fragile subterranean cocoon.

**Effectiveness of different sampling methods:** The adults come to light-traps, and are attracted to flowers, but not to sugar (Lorimer, 1979).

**Range:** Confined to a few localities on the higher sea-cliffs of southern and western coasts, from Waterford to Clare. There are historical records from the coast of Co. Donegal, and the shores of Lough Neagh, Co. Tyrone, but the latter is now generally discounted (Baynes, 1970). In Britain this species is known only from coastal cliffs in the Isle of Man, the Inner Hebrides, and a single locality at the extreme west of the Scottish mainland. Widely distributed on mountains in Spain, France, central Europe and the Balkans, also on Crete and Sicily. It also occurs, partly coastally, in Fennoscandia; widely in southern Norway, locally in the southern half of Sweden and in the extreme south of Finland.

**Status:** Very localised resident.

**Conservation:** Although the high sea-cliff habitat of this species does not appear to be under serious threat, in view of the distinctive local forms of the species in Ireland imply that its habitats, which are also those of several other highly localised Noctuid species, need to be protected.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Hadena confusa*

Species name: *Hadena confusa* (Hufnagel, 1766) (*Phalaena*). English Name: MARBLED CORONET.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *conspersa* (Denis & Schiffermüller, 1775); *nana* (Rottemburg, 1776), *nec* (Hufnagel, 1766); *x-scriptum* (Sowerby, 1806); *suffusa* (Tutt, 1892); *hethlandica* (Staudinger, 1892); *ochrea* (Tutt, 1902); *obliterae* (Tutt, 1902).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The separation of this species and *H. compta* (Denis & Schiffermüller, 1775) on wing pattern is discussed by Heath (1971a). The terminalia are illustrated in Pierce (1909, 1942) (as *Dianthoecia conspersa* (*nana*)/*Hadena conspersa*).



**Macrohabitats:** Vegetated sea-cliffs.

**Adult microsites:** Not indicated.

**Flight Period:** Late May and June.

**Oviposition site:** On the buds of low-growing herbs.

**Larval microsites:** On low-growing plants of the herb layer; in the fruiting bodies; later also externally on these.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): The larva feeds nocturnally on the unripe seeds of *Silene* spp, especially *S. uniflora* and *S. vulgaris*, also on *Lychnis flos-cuculi*; in July and early August, pupating in September in a fragile cocoon just below the soil surface and overwintering there.

**Effectiveness of different sampling methods:** Comes to light-traps, also reported to be attracted to flowers but not to sugar (Lorimer, 1979).

**Range:** Scarce and mainly coastal. Found very locally in West Cork, Kerry and Clare, but more commonly in the north, also found inland in some northern counties, especially Fermanagh. Widely distributed on coasts and calcareous soils in Britain, from Cornwall to the Outer Hebrides and Shetland. Generally distributed over Europe, extending northwards to central Fennoscandia, and occurring very locally in the north.

**Status:** Local resident.

**Conservation:** Although local, and absent from extensive areas, this species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Hadena luteago*

Species name: *Hadena luteago barrettii* (Doubleday, 1864) [*luteago luteago* (Denis & Schiffermüller, 1775)] (*Noctua*). English Name: BARRETT'S MARBLED CORONET.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *lowei* (Tutt, 1898); *ficklini* (Tutt, 1902).

Subspecific status: British and Irish specimens are referable to subsp. *barrettii*, which is darker than the nominate form, but there is considerable local variation even within Ireland, with more westerly specimens generally being darker.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Dianthoecia/Hadena barrettii*).

**Macrohabitats:** Vegetated sea-cliffs.

**Adult microsites:** "Rarely seen by day" (Lorimer, 1979).

**Flight Period:** Early June to late July (Lorimer, 1979).

**Oviposition site:** On the foodplant, laid singly (Lorimer, 1979).

**Larval microsites:** In leaves/stems, and in stem-bases of low growing plants of the herb-layer.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): The larva bores into the leaves and leaf-axils of *Silene uniflora*, *S. vulgaris*, *Spergularia rupicola* and *S. rubra*, later penetrating the stems and entering the roots, feeding in August and September; pupating in October at the roots of the foodplant, where it also overwinters.

**Effectiveness of different sampling methods:** Has been taken at light-traps, also reported to be attracted to flowers but not to sugar (Lorimer, 1979).

**Range:** Known only from sea-cliffs, at Howth Head, Co. Dublin (type locality of *H. luteago barrettii*) and very locally in cos Cork and Waterford, from Glengarriff eastwards to Tramore. In Britain this species is found on sea-cliffs in Devon, Cornwall and Pembrokeshire. There are also old records from North Wales and the Isle of Man. The species is found, mainly on mountains, in France, Central Europe, Italy and some Mediterranean islands and in the Balkans to Greece; it also occurs in the extreme south of Finland as well as in Latvia, Lithuania, Poland, the Czech Republic and Slovakia.

**Status:** Highly localised resident.

**Conservation:** The type locality of the Irish subspecies at Howth continues to need protection. Its south-coast sea-cliff habitats are probably relatively secure.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Hadena perplexa*

Species name: *Hadena perplexa capsophila* (Duponchel, 1842) [*perplexa perplexa* (Denis & Schiffermüller, 1775)] (*Noctua*). English Name: THE TAWNY SHEARS.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *lepida* (Esper, 1790) *nec* Cramer, [1777]; *carpophaga* (Brahm, 1791); *carpophaga* (Borkhausen, 1792); *ochracea* (Haworth, 1809); *pallida* (Tutt, 1902).

Subspecific status: Irish specimens are referable to subsp. *perplexa*, which is described as having the forewing dark fuscous to blackish (highly variable in nominate form, but generally whitish to muddy brown), lacking brown tones; lines and upper stigmata finely outlined whitish; pale blotch before claviform stigma absent (Lorimer, 1979).

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Dianthoecia carpophaga*, *Dianthoecia capsophila*/*Hadena lepida* (*carpophaga*) (*capsophila*)).

**Macrohabitats:** Vegetated sea-cliffs.

**Adult microsites:** Not indicated.

**Flight Period:** May and to early July, occasionally again in August, at least on the south coast, as in 1990. Adults have been found as early as mid-April on the East Cork cliffs. In the cold summer of 1986, the adults were recorded from late May to late July. According to Lorimer (1979) “subsp. *capsophila* is univoltine”.

**Oviposition site:** Inside the opening buds and flowers of the foodplant; laid singly (Lorimer, 1979).

**Larval microsites:** On low-growing plants of the herb layer; inside the fruiting bodies; later also externally on these.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): The larva feeds, mainly by night, on the developing seed capsule of white-flowered *Silene* spp.; in Ireland almost certainly mainly on *S. uniflora*. Myers (1968) records that *Spergularia rupicola* and cultivated *Dianthus* spp. were accepted in captivity. Feeding occurs in May, and at least in the south in the period late June to September. Pupating in a fragile subterranean cocoon, just below the surface of the soil, and overwintering there.

**Effectiveness of different sampling methods:** Found regularly at light -traps near sea cliffs. Although the adult comes to flowers from early dusk, it is not attracted to sugar (Lorimer, 1979).

**Range:** Widely distributed around the Irish coast, and sometimes abundant on coastal cliffs, but apparently absent from long sections of northern and eastern coasts. The nominate form is widespread on coasts, and inland on calcareous soils, in Britain as far north as the extreme south of Scotland. In Cornwall and from Pembrokeshire northwards the species approaches subsp. *capsophila*, while on the Isle of Man the species is represented by subsp. *capsophila*. Found throughout Europe, apart from some Mediterranean islands, and European Turkey; extending to southern Norway, central Sweden, and the north of the Baltic coast in Finland.

**Status:** Local resident.

**Conservation:** This species does not appear to be in special need of protection.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Hadena rivularis*

Species name: *Hadena rivularis* (Fabricius, 1775) (*Noctua*). English Name: THE CHAMPION.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *cucubali* (Denis & Schiffermüller, 1775).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The separation of *H. bicruris* and *H. rivularis* by wing pattern is discussed by Heath (1971a). The terminalia are illustrated in Pierce (1909, 1942) (as *Dianthoecia/Hadena cucubali*).

**Macrohabitats:** Humid eutrophic non-flooded grassland; vegetated sea-cliffs; acid fen and transition mire; marsh and tall-herb swamp.

**Adult microsites:** Not known by day, but feeds from early dusk on flowers such as champions, red valerian and wood sage (Lorimer, 1979).

**Flight Period:** Early May, and again from early August to early September. The only records of the second flight period on the *Irish Noctuidae Database* are from south coast sites.

**Oviposition site:** On and inside the opening buds and flowers of the foodplant, laid singly (Lorimer, 1979).

**Larval microsites:** On and in low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): The larva bores into the developing seed capsules of *Silene* spp., especially *Silene uniflora*, and *Lychnis flos-cuculi*. in May-June, and probably also around late July, at least in the south. In a fragile subterranean cocoon, just below the surface of the ground, also overwintering there.

**Effectiveness of different sampling methods:** Found regularly at light-traps, usually in rather small numbers. Reported not to come to sugar (Lorimer, 1979).

**Range:** Widely distributed, and common in some areas. It is most common on sea-cliffs, at least in southern areas; much more local inland, and found mainly in calcareous areas. Widespread in Britain, extending to the Inner Hebrides and Orkney. It is locally common, especially in the south, and is largely associated with damp habitats. In the Isle of Man it occurs on coastal cliffs. Generally distributed over Europe, apart from Portugal and some Mediterranean islands, and extending to only Romania and former Yugoslavia in the Balkans; in Fennoscandia absent only from central and northern Norway.

**Status:** Resident.

**Conservation:** This species does not seem to be of conservation concern in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Hecatera bicolorata*

**Species name:** *Hecatera bicolorata* (Hufnagel, 1766) (*Phalaena*). English name: BROAD-BARRED WHITE. [Note: in *Aetheria* in Karsholt & Razowski, 1996].

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *serena* (Denis & Schiffermüller, 1775); *par* (Donovan, 1801).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Dianthoecia/Hecatera serena*).

**Macrohabitats:** Unimproved dry non-calcareous grassland; coastal grey dunes; field margins.

**Adult microsites:** The adult is “often found by day and feeds at flowers from sunset” (Lorimer, 1979).

**Flight Period:** Late June to late July; in Britain it is reported to have a long period of emergence from the end of May onwards through June.

**Oviposition site:** On the foodplant, but laid there at random (Lorimer, 1979).

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeding externally, both diurnally and nocturnally, in August and September on the buds and flowers of various Compositae, including *Picris*, *Hieracium*, *Crepis*, *Lactuca* and *Sonchus* spp. Pupating in a fragile cocoon just below the surface of the soil in November, where it overwinters.

**Effectiveness of different sampling methods:** Regularly found at light-traps, but always in small numbers.

**Range:** Found locally in small numbers around the coasts, mainly those of the south and east; also very locally inland in cos Armagh, Down and Wicklow. In Britain this species is much more generally distributed, especially in the south. It is common in the south and east of England, becoming more local and confined to the coast in Wales and southwest and northern England. In Scotland it is largely confined to certain parts of the south and east, extending very locally to Inverness. Found throughout Europe to southern Norway and the north of both Sweden and Finland; not recorded from only Corsica.

**Status:** Local resident.

**Conservation:** Loss of coastal herb-rich grassland due to golf-course development, etc. continues to pose a risk to this species in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### ***Heliophobus reticulata***

Species name: *Heliophobus reticulata hibernica* (Cockayne, 1944) [*reticulata reticulata* (Goeze, 1781)] (*Noctua* (*Phalaena*)). English Name: THE BORDERED GOTHIC.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *calcatrippe* (Vieweg, 1790); *saponariae* (Borkhausen, 1792).

**Subspecific status:** Irish specimens are referable to subsp. *hibernica*; and British ones to subsp. *marginosa* (Haworth, 1809). In subspecies *hibernica* the ground colour of the forewing is described as pale purplish brown, in contrast to the forewing of *marginosa* which is pale brown (Lorimer, 1979), but that author does not indicate how either subspecies differs from the nominate form.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Neuria saponariae*/*Heliophobus saponariae* (*reticulata*)).

**Macrohabitats:** Vegetated sea-cliffs.

**Adult microsites:** Not indicated.

**Flight Period:** June and early July in Britain (Lorimer, 1979). Irish records are from June apart from a single early August record in 1980.

**Oviposition site:** On the foodplant, usually laid in rows (Lorimer, 1979).

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998); Salvela (2004): Apparently unknown in Britain and Ireland, although it has been suggested that the larva feeds on the seedpods of *Silene vulgaris*, *Saponaria officinalis* (on which it has been bred in captivity) or *Polygonum aviculare*. Salvela (2004) lists a number of Caryophyllaceae as foodplants, but these do not include any found in Ireland. It is full-fed in August and pupates in a subterranean cocoon in October.

**Effectiveness of different sampling methods:** Has been taken at mercury-vapour light-trap; according to Lorimer (1979) it also comes to sugar.

**Range:** Confined to coastal sites from Hook Head, Co. Wexford westwards to the south side of the Iveragh Peninsula, Co. Kerry. Most records are from close to coastal cliffs in Co. Cork. The nominate form was formerly found locally over much of England and Wales, but has recently become scarce, and is confined to Breckland, part of the Dorset coast and south Wales. It is currently included in the UK Biodiversity Action Plan scheme. Generally distributed over Europe apart from European Turkey and some of the Mediterranean islands; extending north to southern Norway, central Sweden and locally to about 66°N in Finland.

**Status:** Very local resident.

**Conservation:** Although its cliff habitats are probably relatively secure, the status of this Irish subspecies needs to be monitored, especially as the decline of British subspecies is of concern to conservationists.

**Compiler:** K. G. M. Bond. Date of compilation: 15<sup>th</sup> February 2006.

### *Herminia grisealis*

Species name: *Herminia grisealis* (Denis & Schiffermüller, 1775) (*Phalaena*). English Name: SMALL FAN-FOOT.

**Nomenclature:** Herminiinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *nemoralis* (Fabricius, 1775); *nemoratus* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) (both as *Z. nemoralis*), and Skinner (1998). The terminalia are illustrated in Pierce (1938) (as *Zanclognatha nemoralis (grisealis)*).

**Macrohabitats:** *Quercus/Fraxinus/Corylus* and acidophilous *Quercus* forest, rich-soil scrub, scattered trees (*Quercus*), tall-herb & grassy forest clearings; field margins, hedges, urban parks & ornamental gardens.

**Adult microsites:** "May be disturbed by day from hedges, bushes and the lower branches of trees" (Skinner, 1998).

**Flight Period:** From about the middle of June to early August; sometimes as early as late May on the south coast. In Britain from June to August.

**Oviposition site:** Not indicated.

**Larval microsites:** On the foliage of mature and understorey trees; shrubs/saplings and tall herbs; on forest and herb-layer litter; overwintering on trees, on/under bark [or on withered leaves] or on forest or herb-layer litter.

**Food and feeding habitats** (Bretherton, 1983); (Emmet, 1991); (Skinner, 1998): Feeding on living and withered leaves of *Quercus* spp. and various other deciduous trees; also skeletonizing green leaves of *Rubus fruticosus* agg. and *Rhododendron ponticum*, or *Urtica* (Emmet, 1991). August to October, pupating in November in a cocoon in detritus or on wood, and overwintering there.

**Effectiveness of different sampling methods:** The adult is regularly attracted to light, sometimes in large numbers; it is also sometimes seen by day. According to Bretherton (1983) it also comes freely to flowers at night.

**Range:** Widely distributed over Ireland, and common in many areas. Generally distributed over England Wales, the Isle of Man and southern Scotland, more local and mainly eastern in the Highlands, extending to Moray Firth and Ross-shire, also on Arran. Generally distributed over mainland Europe apart from Albania, also known from Corsica; extending north to central Sweden.

**Status:** Resident.

**Conservation:** This species does not appear to be in need on conservation in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 8<sup>th</sup> February 2006.

### *Hoplodrina ambigua*

**Species name:** *Hoplodrina ambigua* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: VINE'S RUSTIC.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *plantaginis* (Hübner, 1813).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The species may be confused with others of the genus, but the hindwings are much whiter in this

species. The terminalia are illustrated in Pierce (1909, 1942) (as *Caradrina ambigua*); and in Goater (1983).

**Macrohabitats:** Unimproved dry grassland; dry calcareous heath.

**Adult microsites:** Most common on grass slopes near the sea (Goater, 1983).

**Flight Period:** Insufficient data for Ireland. In Britain in June and mid-August to mid-September, in two generations (Goater, 1983).

**Oviposition site:** Not indicated.

**Larval microsites:** In Britain: on low-growing plants of the herb layer.

**Food and feeding habitats** (Bretherton, 1983); (Emmet, 1991); (Skinner, 1998): Polyphagous in Britain, on many low forbs, including in particular *Taraxacum* agg. Overwintering as a larva; feeding externally from October to May and pupating in a subterranean cocoon in May.

**Effectiveness of different sampling methods:** It has been taken at light-trap in Ireland. According to Goater (1983), the moth comes readily to light, sugar and to flowers, especially those of heather, *Buddleja* and common reed (*Phragmites australis*).

**Range:** First recorded from Ireland at Youghal (Agassiz, 1977), also reported from Fountainstown (twice) (Myers, 1979), both in Co. Cork, and more recently from Co. Antrim (Hughes, pers. comm.). It is also possible that the species has been overlooked due to confusion with similar species. Myers (1979) speculated that it could become an Irish resident, and its inclusion here is based on the likelihood that was temporarily established near the south coast. In Britain, after becoming established on the south coast in the 1940's, it has spread northwards, and is now well established as far north as the English Midlands, with scattered records, probably largely migratory, as far as central Scotland. It is reported throughout southern Europe, and continues to spread north, now having become established in Denmark and southernmost Sweden, but there are no records from Norway or Finland.

**Status:** Scarce migrant, but could become a permanent resident, initially in the south.

**Conservation:** There is so far no evidence to show that this species has become resident in Ireland, but in keeping with the northward shift observed in many Lepidoptera, it could easily become established with the continuation of climatic warming.

**Compiler:** K.G.M. Bond. Date of compilation: 11<sup>th</sup> November 2006.

### *Hoplodrina blanda*

**Species name:** *Hoplodrina blanda* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: THE RUSTIC.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *redacta* (Haworth, 1809); *?egens* (Haworth, 1809); *taraxaci* (Hübner, 1813); *laevis* sensu Wood, 1834.

Subspecific status: None.



**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). Worn specimens may be difficult to separate from *H. octogenaria*, but in general the paler hindwing and “smoother” appearance of the forewing in *H. blanda* are useful characters. The terminalia are illustrated in Pierce (1909, 1942) (as *Caradrina blanda*); and also in Goater (1983), but the separation of this species and *H. octogenaria* on genitalia alone remains difficult. The separation of *H. blanda* and *H. octogenaria* on male terminalia is also discussed and illustrated in Tams (1942).

**Macrohabitats:** Grassy forest clearings/tracksides; calcareous & non-calcareous unimproved dry grassland; coastal grey dunes, machair & dune slacks; fallow land, field margins, urban parks & ornamental gardens.

**Adult microsites:** Rests concealed by day.

**Flight Period:** In Ireland generally from late June to early August, but specimens have been observed in late September in West Mayo

**Oviposition site:** Not stated.

**Larval microsites:** On low-growing plant of the herb layer.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); Skinner, 1998): Nocturnal on various herbaceous plants among which are *Stellaria media*, *Rumex* spp., and *Plantago* spp. also, according to Barrett (1899), on grasses; feeding externally on the foodplant, but concealed by day. September to May, overwintering as a larva and pupating in a cocoon in the soil.

**Effectiveness of different sampling methods:** Regularly taken in numbers at light-traps; also reported to be attracted to flowers such as *Buddleja davidii*, ragwort (*Senecio jacobaea*) and rushes (*Juncus* spp.), and to sugar (Goater, 1983).

**Range:** This species is common in the south and east of Ireland; but is more local in the northwest, where it appears to be largely coastal. It is, however, likely that it is under-recorded in some areas due to confusion with *H. octogenaria*. In Britain it is common throughout England and Wales, but more local and largely coastal in Scotland, extending to the Outer Hebrides. Found throughout continental Europe, apart from Turkey, to northern Sweden and Finland, also in Corsica, Sardinia, Sicily and Malta.

**Status:** Common resident, at least in the south and east.

**Conservation:** This species seems to under little threat in Ireland, except where sand-dune systems are under threat at some of its coastal sites in the northwest.

**Compiler:** K.G.M. Bond. Date of compilation: 11<sup>th</sup> January 2006.

### *Hoplodrina octogenaria*

**Species name:** *Hoplodrina octogenaria* (Goeze, 1781) (*Phalaena* (*Noctua*)). English Name: THE UNCERTAIN.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *alsines* (Brahm, 1791); *sordida* (Haworth, 1809), nec (Hübner, 1803); *implexa* sensu Stephens, 1829.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). Worn specimens may be confused with *H. blanda*. The terminalia are illustrated in Pierce (1909, 1942) (as *Caradrina alsines*); and are also illustrated in Goater (1983); but the separation of this species and *H. blanda* on male genitalia alone remains difficult. In Goater (1983) the separation of these species is discussed, based initially on external features, preceded by the comment “most individuals will yield to the following criteria, but in cases of doubt reference should be made to the genitalia”. There is, however, no text dealing with the reputed genitalic differences, and no diagnostic features are indicated in the drawings; indeed some of the apparent differences could simply represent individual variation, as suggested following recent examination of a number of genitalia preparations (pers. obs.). The separation of *H. blanda* and *H. octogenaria* on male terminalia is also discussed and illustrated in Tams (1942).

**Macrohabitats:** Grassy forest clearings/tracksides; non-calcareous unimproved dry grassland; coastal grey dunes; fallow land, field margins, urban parks & ornamental gardens.

**Adult microsites:** Rests concealed by day.

**Flight Period:** In Ireland from the end of June to about mid-August, but specimens has been recorded from West Cork and West Mayo in late August and early September. . For Britain, Goater (1983) gives late June to August and occasionally again in late autumn.

**Oviposition site:** Not stated.

**Larval microsites:** On low-growing forbs of the herb layer.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): On various low-growing herbaceous plants, in particular *Stellaria media*, *Primula vulgaris*, *Rumex* spp., *Plantago* spp. Overwintering as a larva, feeding from September to the following April when it pupates in a subterranean cocoon.

**Effectiveness of different sampling methods:** Commonly, or even abundant at light-traps, also reported to be attracted to lime-blossom (*Tilia* spp.) and other flowers, honey-dew and sugar (Goater, 1983). One was recorded from a Malaise Trap in 2002.

**Range:** Although Baynes (1964) repeated Donovan’s (1936) assertion that the species is rare in Ireland, it appears to be common over much of the south and east of the country at least, and has been found in large numbers on the South Wexford coast. It seems to decrease towards the northwest to become rare in Donegal. Surprisingly, Bradley & Pelham-Clinton (1967) did not record this species from the Burren, where they also recorded only two specimens of *H. blanda*. There has probably been confusion with *H. blanda*, and further fieldwork is needed, especially in the northwest, to establish the overall Irish status of the species. In Britain it is common and widespread in the south, becoming more local north of south Cumbria, and only sparsely scattered in Scotland to the Moray Firth. Generally distributed over continental Europe apart from Turkey, to central Fennoscandia, and found on many of the Mediterranean islands.

**Status:** Common resident, at least in the south and east.

**Conservation:** This species seems to under little threat in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 11<sup>th</sup> January 2006.

*Hydraecia micacea*

**Species name:** *Hydraecia micacea* (Esper, 1789) (*Phalaena* (*Noctua*)). English Name: ROSY RUSTIC.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *cypriaca* Hübner, 1803.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). Illustrated in Heath & Emmet (1983), Brooks (1991), Skinner (1998), and several other British publications. The terminalia are illustrated in Pierce (1909, 1942) (as *Hydroecia/Hydraecia micacea*).

**Macrohabitats:** Tall-herb and grassy forest clearings/tracksides; humid non-flooded eutrophic grassland; coastal machair and dune slacks; fallow land, field margins & urban parks; fen carr & transition mire; marsh and tall herb swamp.

**Adult microsites:** Not stated.

**Flight Period:** In Ireland from the end of July until the end of September, occasionally in late September. For Britain, Goater (1983) extends this to November, but Skinner (1998) gives just August to October.

**Oviposition site:** Undescribed, but probably on the roots of low herbs.

**Larval microsites:** In the root zone.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): On the roots of a wide variety of herbaceous plants, among those mentioned being *Plantago* spp., *Limonium vulgare* [in Britain], *Stachys arvensis*, *Carex* spp., *Solanum tuberosum*, *Equisetum arvense* and *E. fluviatile*; also recorded as a pest on *Rubus idaeus*, strawberry (*Fragaria x ananassa*), etc. May to August, when it pupates without a cocoon in the soil. Overwintering as ovum.

**Effectiveness of different sampling methods:** Frequently encountered at light-traps, occasionally in large numbers at Mercury-vapour. According to Goater (1983) it only rarely visits flowers, sugar of honey-dew, but the males in particular are strongly attracted to light.

**Range:** Common throughout Ireland in a wide range of habitats. It is also common throughout Britain to the Shetlands and Outer Hebrides including St Kilda. Found throughout continental Europe to northern Fennoscandia, but absent from Portugal, the south-eastern Balkans and the Mediterranean Islands.

**Status:** Common resident.

**Conservation:** This species appears to be under no significant threat in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

*Hypena crassalis*

**Species name:** *Hypena crassalis* (Fabricius, 1787) (*Phalaena*). English Name: BEAUTIFUL SNOUT.

**Nomenclature:** Hypeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *frontis* (Thunberg, 1788); *fontis* misspelling; *achatalis* (Hübner, 1796); *crassatus* (Haworth, 1809); *achatatatus* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce & Metcalfe (1938) (as *Bomolocha fontis* (*crassalis*)).

**Macrohabitats:** Acidophilous *Quercus* forest (gen.).

**Adult microsites:** "Rests by day on tree-trunks and on banks, flying quickly when disturbed" (Bretherton, 1983).

**Flight Period:** The few Irish records found are from June to mid-August. For Britain, Bretherton (1983) indicates late May to early August "varying according to altitude", while Skinner (1998) indicates June and July.

**Oviposition site:** Not indicated.

**Larval microsites:** On low shrubs; overwintering in herb-layer litter or forest litter.

**Food and feeding habitats** (Bretherton, 1983); (Emmet, 1991); (Skinner, 1998): On *Vaccinium myrtillus*, possibly also on *Erica tetralix* and *E. cinerea*; feeding externally in August and September, then pupating and overwintering as a pupa.

**Effectiveness of different sampling methods:** The moth comes to light-traps, and according to Bretherton (1983) also at night to and flowers and occasionally to sugar. In addition he reports that it is easily disturbed by day from bushes and low vegetation.

**Range:** A very local species, largely confined to oakwoods with a good growth of *Vaccinium myrtillus*. Its main localities seem to be the oakwoods of Kerry and east Wicklow; there area also scattered records from Co. Cork and west Waterford and Wexford, and in the west from Galway and Mayo. In 1988 it was discovered at Crom, Co. Fermanagh and soon afterwards at several other sites in the southern half of Northern Ireland, as well as in Co. Donegal, leading Cromie & Shepard (2003) to conclude that it has recently expanded its range. In Britain this species is widely distributed in the southeast, southwest and Midlands of England, and parts of Wales, with only isolated colonies in Cumbria and the East Midlands. Generally distributed over most of Europe, present on Corsica, but absent from the southern Balkans; extending north to southeast Norway and northern Sweden.

**Status:** Very local resident.

**Conservation:** Although this is a very local species, its habitats seem relatively secure at present.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

***Hypena proboscidalis***

**Species name:** *Hypena proboscidalis* (Linnaeus, 1758) (*Phalaena (Pyralis)*). English Name: THE SNOUT.

**Nomenclature:** Hypeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *proboscidatus* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The male and female terminalia are illustrated in Pierce & Metcalfe (1938) (as *Hypena proboscidalis*).

**Macrohabitats:** Tall-herb & grassy forest clearings; humid eutrophic grassland; lightly grazed improved grassland; fallow land, field margins, urban parks & ornamental gardens.

**Adult microsites:** The adult can easily be disturbed by day from hedges and low vegetation (Bretherton, 1983).

**Flight Period:** From about late June to late August; very occasionally a second generation about September. In Britain also from about June to August, with a second generation in September and early October, except in northern parts (Skinner, 1998).

**Oviposition site:** Not indicated.

**Larval microsites:** On tall herbs and low-growing plants of the herb layer; overwintering in herb-layer litter.

**Food and feeding habitats** (Bretherton, 1983); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally, on spun leaves of *Urtica dioica*; from autumn to May or June of the following year; possibly occasionally in a second generation in late July or August. Overwintering as a hibernating larva.

**Effectiveness of different sampling methods:** The adult is regularly found in numbers at light-traps. It is also easily disturbed by day by beating clumps of nettle. The larva can also be found by searching the leaves of the foodplant for larval spinings.

**Range:** Generally distributed and common wherever nettle, *Urtica dioica*, occurs in Ireland. In Britain it is generally distributed as far north as Orkney and the Inner Hebrides, and common over much of that area as well as on the Isle of Man. Generally distributed over Europe apart from Albania, European Turkey and some of the Mediterranean islands; extending to north of the Arctic Circle in Scandinavia.

**Status:** Resident.

**Conservation:** This species is not under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

***Hypenodes humidalis***

**Species name:** *Hypenodes humidalis* Doubleday, 1850. English Name: MARSH OBLIQUE-BARRED.

**Nomenclature:** Strepsimaninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *turfosalis* (Wocke, 1850). Karsholt & Razowski place *humidalis* as a junior synonym of *turfosalis*, but according to Bretherton (1983) *turfosalis* was published in December 1850, whereas *humidalis* was published in October 1850.

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The male terminalia are illustrated in Pierce & Metcalfe (1938) (as *Tholomiges turfosalis*); but the female genitalia illustrated there do not correspond to those found in Irish specimens, for example there is no signum in the latter.

**Macrohabitats:** Humid/flooded oligotrophic grassland; wet heath; blanket bog.

**Adult microsites:** Not known precisely, but the adult appears to rest on ground vegetation, from which it is "difficult to disturb by day, but [it] flies in swarms at early dusk" (Bretherton, 1983). However, Skinner (1998) states that it flies in the late afternoon and at dusk; this is supported by Irish observations.

**Flight Period:** Early July to late August. In Britain its flight period differs considerably in different regions, but ranges between late June and late August, with an occasional second generation in September (Bretherton, 1983); (Skinner, 1998).

**Oviposition site:** Unknown.

**Larval microsites:** Unknown.

**Food and feeding habitats** (Bretherton, 1983); (Emmet, 1991); (Skinner, 1998): The immature stages of this species are unknown.

**Effectiveness of different sampling methods:** Has been taken at both actinic and mercury-vapour light-traps, but equally frequently encountered in flight in the latter part of the day; also reported to be attracted to light (Bretherton, 1983).

**Range:** Although Baynes (1964) stated that this species was known from only boggy parts of Kerry; it has more recently been found in widely scattered sites over the west of Ireland from Clare to Donegal, and was first found in Northern Ireland in Co. Armagh in 1998, and is now known from several sites in Cos Armagh and Fermanagh (Thompson & Nelson, 2003), and has also recently been found at several sites in Co. Donegal. It was first found in east Wicklow in 2003, and found there again in 2005. It is certainly still very common in parts of Kerry, where an estimated 100 specimens were observed at Gortrassane, near Killarney, on the afternoon of 16th July 1989. As suggested by Thompson & Nelson (2003), it seems likely that the species has frequently been overlooked as an apparent "micro". In Britain it is widely scattered, but very local in acid bogs and mosses from southern England to western Scotland. Widespread in Europe, but unrecorded from the Iberian Peninsula, Albania, Greece and Turkey; extending northwards to northern Sweden.

**Status:** Locally abundant resident.

**Conservation:** Probably not under threat in most of its Irish localities.

**Compiler:** K. G. M. Bond. Date of compilation: 25<sup>th</sup> November, 2005.

***Hyppa rectilinea***

**Species name:** *Hyppa rectilinea* (Esper, 1788) (*Phalaena (Noctua)*). English Name: THE SAXON.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None described, but British and Irish specimens differ somewhat in external appearance from each other and from other European specimens (see Goater, 1983).

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Hadena/Hyppa rectilinea*).

**Macrohabitats:** Mature & sapling *Betula* forests; scattered *Salix* & *Betula* trees; montane heath.

**Adult microsites:** "Rests by day on fence-posts and more especially on small birch-trees, where it is remarkably procryptic" Goater, 1983).

**Flight Period:** Late May and June (Goater, 1983).

**Oviposition site:** On the foliage of the foodplant.

**Larval microsites:** On trees and shrubs; on the foliage.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds in late summer and autumn on *Salix* spp., *Rubus fruticosus* agg., *R. idaeus* and *Arctostaphylos uva-ursi*, but the last is absent from the Irish sites. In October it spins a hibernaculum in litter, and remains there in winter diapause until pupating in a slight cocoon in April.

**Effectiveness of different sampling methods:**

**Range:** Only known with certainty from the Killarney area of Co. Kerry. Old records from Co. Galway are considered very dubious (see Donovan, 1936). In Britain this species is known mainly from Scotland, where it is widespread in the Highlands, extending locally to Aberdeen, the Inner Hebrides (Mull) and almost to the north coast. It also occurs locally in Dumfries and the Berwickshire. In England it is known from south Cumbria, but was formerly also recorded from Yorkshire. The species occurs throughout Europe, apart from Portugal, the Mediterranean islands and the southern Balkans; in Fennoscandia it extends to the far north of Norway.

**Status:** Highly localised resident.

**Conservation:** Although it is very localised, the Killarney population seems to be stable over a long period.

**Compiler:** K. G. M. Bond. Date of compilation: 8<sup>th</sup> February 2006.

***Ipimorpha subtusa***

**Species name:** *Ipimorpha subtusa* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: THE OLIVE.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Tethea /Zenobia subtusa*).

**Macrohabitats:** Scattered *Populus* trees.

**Adult microsites:** Unknown by day, but has been observed resting on the leaves of reeds in marshes (Barrett, 1899, quoted in Goater, 1983).

**Flight Period:** Mid-July to early September (Thompson & Nelson, 2003); Goater (1983) gives July and August.

**Oviposition site:** Not stated, but probably on the bark of trees.

**Larval microsites:** On the foliage of trees.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Feeding in April and May on *Populus* spp., within folded leaves, usually high in the tree. According to Goater (1983) it is "associated with poplars in marshes and aspen in woods". Pupating in a subterranean cocoon in June; overwintering as an ovum.

**Effectiveness of different sampling methods:**

**Range:** Rare and local; apart from a single 1931 record from Co. Kildare and an unlocalised historical record from Co. Tyrone, it is known only from cos Fermanagh (Crom Estate and near Enniskillen); Co. Armagh (Gosford Forest Park) and Co. Down (Belvoir Park, Belfast). Local and rather uncommon in Britain, but widely distributed in the south, extending locally through northern England to southeast Scotland and the Central lowlands. This species is widely distributed over Europe from Spain to Greece, and northwards to southern Norway and central parts of Sweden and Norway.

**Status:** Scarce and local resident.

**Conservation:** This species is vulnerable to any decline of mature aspen (*Populus tremula*) in its few localities.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

### *Lacanobia contigua*

**Species name:** *Lacanobia contigua* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: BEAUTIFUL BROCADE.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *dives* (Haworth, 1809), nec (Donovan, 1801); *pulchellina* (Haworth, 1809).

Subspecific status: None.



**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Hadena/Lacanobia contigua*).

**Macrohabitats:** Mature and sapling *Betula* woodland; scattered *Salix* and *Betula*; tall-herb and grassy forest clearings; unimproved dry grassland and limestone pavement.

**Adult microsites:** "Frequently found by day at rest on fence-posts, tree-trunks and among foliage" (Lorimer, 1979).

**Flight Period:** IRL: Early June to early July. Goater gives "June and July" for Britain.

**Oviposition site:** On the foodplant, "in large, untidy masses" (Lorimer, 1979)

**Larval microsites:** On the foliage of trees and on herb layer plants.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeding on foliage of a wide range of trees and herbaceous plants, among which are *Rumex* spp., *Salix* spp., *Betula* spp., *Quercus* spp., *Corylus avellana*, *Cytisus scoparius*, *Myrica gale*, *Solidago virgaurea* and *Pteridium aquilinum*. August to September, pupating in a weak subterranean cocoon in October; and overwintering as a pupa.

**Effectiveness of different sampling methods:** Attracted to light-traps and to sugar. The adult can also be found by day on fence-posts, tree-trunks and among foliage (Lorimer, 1979).

**Range:** Scarce and local, with most records from Kerry, the Burren and the Galway area. There are few records from the east, and few of these are recent. Likewise, there appear to be few if any recent confirmed records from the north. In Britain it has a discontinuous distribution, mainly in the south of England, but with scattered patches of distribution in western areas, extending to the Scottish Highlands. It is found in all mainland European countries except Portugal, Albania and Greece, but is generally local; extending to southern and central Fennoscandia.

**Status:** Local resident.

**Conservation:** The absence of recent records suggests that this species has been declining. It is vulnerable to loss of open woodland habitats with birch or sallow.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November, 2004.

### *Lacanobia oleracea*

**Species name:** *Lacanobia oleracea* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: BRIGHT-LINE BROWN-EYE.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *essonii* (Hampson, 1909).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Dianthoecia/Diataraxia oleracea*).

**Macrohabitats:** Unimproved dry grassland (gen.); lightly-grazed improved grassland; coastal *Ammophila* dunes, grey dunes and machair; fallow land and field margins; urban parks; Atlantic saltmarsh and scrub saltmarsh.

**Adult microsites:** Not indicated.

**Flight Period:** In Ireland from late May to about the middle of August, but several specimens were observed in late August 2002 in West Mayo. For Britain, Emmet (1991) gives late May to early July; while Lorimer (1979) indicates that the main emergence [of adults] in northern Scotland can be as late as mid-July, and that there is a small second brood in southern England.

**Oviposition site:** On the foodplant, "in large, untidy batches" (Lorimer, 1979).

**Larval microsites:** On herb layer plants (gen.), and on fruits bodies of herb layer plants.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): On foliage of a wide variety of herbaceous plants, but in particular on *Atriplex* spp. and *Chenopodium* spp.; also on fruits of tomato (*Lycopersicon esculentum*) and on other garden plants. July to August or September, overwintering as a pupa in a weak subterranean cocoon.

**Effectiveness of different sampling methods:** The adults are regularly found at all types of light-trap; they are also attracted to flowers such as red valerian (*Centranthus ruber*), wood-sage (*Teucrium scorodina*) soon after dusk, and to sugar. Once recorded from a Malaise Trap. The distinctly marked full-grown larva is sometimes found wandering on the ground near the foodplants.

**Range:** Common and generally distributed throughout Ireland. Generally common throughout most of Britain, but less so in the far north. Found throughout continental Europe, apart from Turkey, to northern Fennoscandia.

**Status:** Common resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Lacanobia suasa*

**Species name:** *Lacanobia suasa* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: DOG'S TOOTH.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *dissimilis* (Knoch, 1781); *denscanis* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Hadena/Lacanobia suasa*).

**Macrohabitats:** Atlantic saltmarsh and saltmarsh scrub.

**Adult microsites:** Not indicated.

**Flight Period:** In Ireland June to late July. For Britain, Lorimer (1979) indicates that there is also a second brood, in September, in southern counties of England.

**Oviposition site:** Not stated, but, "in batches" (Lorimer, 1979).

**Larval microsites:** On herb layer plants.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeds on *Rumex* spp., *Plantago* spp., *Polygonum aviculare* and other herbaceous plants; July and again from late September to October; pupating in July and again in November in a subterranean cocoon in which it overwinters.

**Effectiveness of different sampling methods:** The adult comes to light-traps in small numbers, and is also attracted to sugar (Lorimer, 1979).

**Range:** This species occurs locally, mainly in the vicinity of saltmarshes, extending northwards as far as Co. Sligo in the west and to Co. Down in the east. There are also a few inland records from cos Antrim, Armagh, Down and Wicklow. Found locally in Britain, mainly in the south and mainly in coastal areas and river valleys; extending increasingly locally northwards to southern Scotland and Mull. Found throughout continental Europe apart from Portugal, Albania and Greece, extending to southern Norway, but to the far north of Sweden and Finland.

**Status:** Local resident.

**Conservation:** This species is vulnerable to loss of its saltmarsh habitat due to road construction, reclamation, etc. The absence of recent records from the east coast may indicate that it has already declined at some sites.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Lacanobia thalassina*

**Species name:** *Lacanobia thalassina* (Hufnagel, 1766) (*Noctua*). English Name: PALE-SHOULDERED BROCADE.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *humeralis* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Hadena/Lacanobia thalassina*).

**Macrohabitats:** Mature and sapling *Quercus/Fraxinus/Corylus* and acidophilous *Quercus* woodland; rich-soil scrub; scattered *Quercus* and *Salix*; tall-herb and grassy forest clearings; dry calcareous grassland; field margins, hedges, orchards and urban parks.

**Adult microsites:** "Often found at rest by day on tree-trunks or fences" (Lorimer, 1979).

**Flight Period:** In Ireland early May to mid-July. For Britain, Lorimer gives late May to the middle of June as the main flight period.

**Oviposition site:** On the undersides of leaves, "in large, untidy masses" (Lorimer, 1979).

**Larval microsites:** On foliage of trees and leaves of herb layer plants.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeds nocturnally on a wide variety of trees and forbs; those listed by Lorimer include *Quercus* spp., *Salix* spp., *Crataegus* spp., *Malus sylvestris*, *Senecio vulgaris*, *Polygonum aviculare*, *Cytisus scoparius* and *Lonicera periclymenum*; July to September; pupating in a subterranean cocoon in October, and overwintering there.

**Effectiveness of different sampling methods:** Found regularly at light-traps, usually in small numbers; also comes to flowers and sugar after dark (Lorimer, 1979). Occasionally recorded from Malaise Traps.

**Range:** Widely distributed over Ireland, and common in many areas. It does, however appear to be absent from some coastal areas, and no records were found for west Kerry, west Clare or westernmost parts of Galway and Mayo. Fairly common and widespread over most of Britain, extending to Shetland. Generally distributed in mainland Europe, extending northwards to northern Sweden, and also occurring in Corsica, but unknown in Albania and Turkey.

**Status:** Common resident.

**Conservation:** This species does not appear to be under any significant threat in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 5<sup>th</sup> December 2005.

### *Lithophane hepatica*

**Species name:** *Lithophane hepatica* (Clerck, 1759) (*Phalaena*). English Name: PALE PINION.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *socia* Hufnagel, 1766; *petrificata* (Denis & Schiffermüller, 1775); *rufescens* (Tutt, 1892).

**Note:** Fibiger & Hacker, (1990) consider that the lectotype designation by Mikkola & Honey, (1985) and Mikkola (1993) is invalid, and that *hepatica* is a senior synonym of *Polia tincta* (Brahm).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Xylina petrificata (socia)/Lithophane socia (petrificata)*).

**Macrohabitats:** *Quercus/Fraxinus/Corylus* and acidophilous *Quercus* forests; rich-soil scrub; *Salix* swamp; alluvial softwood forests; scattered *Quercus* & *Salix* trees; grassy forest clearings; hedges & urban parks.

**Adult microsites:** Not indicated.

**Flight Period:** Generally from about late September to early November prior to hibernation, and again from about the beginning of March to May or even the beginning of June; but has also been found on the wing in mid-December.

**Oviposition site:** On the twigs of the initial foodplant; laid singly.

**Larval microsites:** On trees; on the foliage; later also on low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds nocturnally, initially on the leaves of deciduous trees, including most of the common woodland species, from May to June or July. Later in this period it prefers a mixed diet including herbaceous plants such as *Rumex* spp., *Stellaria media* and *Plantago* spp. When full-fed it aestivates for several weeks in a large underground cocoon before pupating in July. It is reputed to be cannibalistic. Overwintering as an imago.

**Effectiveness of different sampling methods:** Regularly found at light-traps; but prior to hibernation it is also attracted to ivy-blossom, berries, rotting fruit and sugar, while after hibernation, both sexes feed at willow- or plum-blossom (Lorimer, 1983).

**Range:** Widely distributed over Ireland, but somewhat local, and probably absent from many areas where woodland is scarce, such as close to the north coast. It has been recorded in only small numbers at light-traps in Ireland. In Britain this species is largely confined to southwestern and southern England south of the Thames, and also Wales. There are isolated records from the English midlands and East Anglia, and the species also occurs on the Isle of Man. Widespread over most of Europe, but local and uncommon in many parts, extending north to southern Norway and central Sweden and Finland with local colonies further north; absent from the southern Balkans and the Mediterranean islands apart from Corsica.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Lithophane leautieri*

**Species name:** *Lithophane leautieri hesperica* Boursin, 1957 [*leautieri leautieri* (Boisduval, 1829)] (*Xylina*). English Name: BLAIR'S SHOULDER-KNOT.

**Nomenclature:** Cuculliinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *lapidea* sensu auctt.

Subspecific status: British specimens are referable to subsp. *hesperica*, which is also found in northern and western France (Lorimer, 1983), but that author does not indicate how it differs from the nominate form.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are not illustrated by Pierce (1909, 1942).

**Macrohabitats:** Ornamental gardens.

**Adult microsites:** Not known with certainty, but Lorimer (1983) suggest that the moths "probably rest high among the foliage of *Cupressus*".

**Flight Period:** Irish records range from late September to early November (Tyner, pers. comm.).

**Oviposition site:** The ova are laid on the underside of sprays of the foodplant.

**Larval microsites:** On trees, on the foliage of evergreen conifers.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding in early instars on male buds and blossoms, later on the tender foliage of *Cupressus macrocarpa*, *Chamaecyparis lawsoniana* and *Cupressocyparis leylandii*, from March to June; pupating in July. The site of pupation not indicated, but the larva produces a loose cocoon of silk and earth in which it rests for several months. Overwintering as an ovum.

**Effectiveness of different sampling methods:** All the Irish records and nearly all the British records of the adults are from light (Lorimer, 1983).

**Range:** First found near Wicklow Town, Co. Wicklow, in October 2002. The following month it was found at Cronykeery, near Ashford, also Co. Wicklow. By the end of 2004 it was known from about five Co. Wicklow sites, from Rathdrum northwards to near Kilcoole, and by late 2005 it had also been recorded in cos Antrim, Armagh, Down and Meath. In Britain this species was first recorded from the Isle of Wight in 1951. By 1960 it had spread to Dorset and Kent, and by 1982 as far as Cornwall, southeast Wales and the East Midlands, and it is currently (2005) common over much of England as far north as Cumbria. This species occurs in southern and southwestern Europe; in Iberia, and more locally in France, Switzerland, Italy, Bulgaria and the Netherlands, as well as on Corsica and Sardinia.

**Status:** Recent colonised, now established and spreading.

**Conservation:** As this is a clearly rapidly spreading species, the question of conservation does not arise.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Lithophane ornitopus*

**Species name:** *Lithophane ornitopus lactipennis* (Dadd, 1911) [*ornitopus ornitopus* (Hufnagel, 1866)] (*Phalaena*). English Name: GREY SHOULDER-KNOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *ornithopus* misspelling; *rizolitha* (Denis & Schiffermüller, 1775); *rhizolitha* misspelling.

Subspecific status: British and Irish specimens are referable to subsp. *lactipennis*. The nominate subspecies is stated to be "pale bluish grey with smoky brown markings and a red-brown orbicular stigma" (Lorimer, 1983).

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Xylina rhizolitha (ornithopus)*/*Graptolitha ornithopus (rhizolitha)*).

**Macrohabitats:** *Quercus*/*Fraxinus*/*Corylus* and acidophilous *Quercus* forests; alluvial hardwood forest; scattered *Quercus*; urban parks.

**Adult microsites:** Rests by day on tree-trunks and wooden fences, where it can be seen more easily than its congeners because its colour does not blend in so well with the background (Lorimer, 1983).

**Flight Period:** From about mid-September to late October, and again after hibernation from about March to May.

**Oviposition site:** On trees, on the twigs and branches of the foodplant.

**Larval microsites:** On the foliage of trees.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeds on the leaves of *Quercus* spp., initially only on the surface of the leaves, later eating the entire leaf, from late April to early June. Later it aestivates in a large subterranean cocoon in which it pupates in August. Overwintering as an imago.

**Effectiveness of different sampling methods:** According to Lorimer (1983), the adult is not often taken at light, but it feeds at ivy-blossom, fruit and berries before hibernation, and in the spring comes to willow, plum-blossom and sugar.

**Range:** Locally distributed over much of Ireland, but probably common only in well-wooded areas. It appears to be absent from extensive areas, such as northwest Ulster. In Britain this species is largely confined to East Anglia, southern England to Cornwall, the West Midlands and Wales, with a few isolated records from the North of England. Widespread over central and southern Europe, apart from Portugal, Albania and some of the Mediterranean islands, extending to southern Sweden and Finland, but absent from Norway.

**Status:** Resident.

**Conservation:** The status of this species in Ireland appears to be stable.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Lithophane semibrunnea*

**Species name:** *Lithophane semibrunnea* English Name: TAWNY PINION.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Xylina/Lithophane semibrunnea*).

**Macrohabitats:** *Quercus*/*Fraxinus*/*Corylus* forests; *Fraxinus* forests; hardwood alluvial forests & brook floodplains; urban parks & ornamental gardens.

**Adult microsites:** Not indicated

**Flight Period:** October to November, and again after hibernation in spring, sometimes continuing as late as May.

**Oviposition site:** Ova are laid singly on twigs of the foodplant.

**Larval microsites:** On the foliage of trees.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds on the foliage of *Fraxinus excelsior* in May and June, and when full-fed it leaves its feeding place and burrows to make a strong underground cocoon, in which it pupates 7-8 weeks later. Overwintering as a hibernating adult.

**Effectiveness of different sampling methods:**

**Range:** The species was discovered at Cronykeery, near Ashford, Co. Wicklow on 8<sup>th</sup> April 2004 (A. Tyner, pers. comm.). In Britain it is widespread but somewhat local in the south of England and east Anglia; becoming scarcer and very local in South-west England, Wales and the Midlands, and rare in northern England. Lorimer (1983) also reported that the species seemed to be in gradual decline at that time. In continental Europe it is generally distributed in Central and southern Europe, but becomes scarcer northwards, being recorded from Denmark and Finland, but not from the Baltic States or Scandinavia.

**Status:** Assumed resident, recently discovered.

**Conservation:** As the species appears to be a recent arrival, the question of conservation does not arise.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Luperina nickerlii*

**Species name:** *Luperina nickerlii knilli* (Boursin, 1964) [*nickerlii nickerlii* (Freyer, 1845)] (*Apamea*).  
English Name: SANDHILL RUSTIC.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *guenei* misspelling; *incerta* Turner, 1934.

Subspecific status: Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). Irish specimens belong to the endemic subsp. *knilli*, while British specimens have been named *leechi* Goater, 1976 (Cornwall) and *guenei* Doubleday, 1864 (North Wales). Goater (1983) argues that there appear to be good grounds for treating *L. nickerlii*, *L. guenei* and *L. nickerlii leechi* as separate species, citing differences in ecology and behaviour of the moth, as well as measurable differences in the structure of the pupa and larva. The terminalia are not illustrated by Pierce (1909, 1942).

**Identification:** Illustrated in Heath & Emmet (1983), Brooks (1991), Skinner (1998), and several other British publications. Only the female terminalia are illustrated by Pierce (1942) (as both "*Luperina gueni*" and *Luperina nickerlii*), but Goater (1983) illustrates the male terminalia of *Luperina*



*nickerlii*. The separation of the three British *Luperina* spp. on wing pattern is discussed and illustrated by Heath (1972).

**Macrohabitats:** Dry non-calcareous grassland; vegetated sea-cliffs.

**Adult microsites:** Not precisely known, but at night moths have been seen flying out from boulders along the shore where they have evidently roosted (Goater, 1983).

**Flight Period:** Insufficient data for Ireland. According to Goater (1983), in Britain there is a long emergence period of the adults from late July to late September.

**Oviposition site:** In captivity the Irish subspecies has been observed inserting the ova into the sheaths of grasses.

**Larval microsites:** In tussocks of grasses.

**Food and feeding habitats** (Myers, 1967); (Goater, 1983); (Emmet, 1991); (Skinner, 1998): The Irish subspecies feeds in captivity within the sheaths *Festuca rubra* and *Cynosurus cristatus* (Myers, 1967). The natural foodplant of the Irish form has not been ascertained, but (Goater, 1983) suggests that it is *Festuca rubra*. The British subspecies later feed from within in a tube in the grass sheaths, but this has not been confirmed in Irish larvae (Myers, pers. comm.). Overwintering as a larva; this stage lasting from September to July, when pupation occurs. The pupae of subspecies *gueneei* and *leechi* lie loose in sand at a depth of several centimetres; the pupation site of ssp. *knilli* is unknown.

**Effectiveness of different sampling methods:** The moth is attracted to light, including paraffin lamp.

**Range:** In Ireland this species is known only from the south coast of the Dingle peninsula, Co. Kerry, where subspecies *knilli* occurs at intervals along the cliffs. The two British subspecies occur very locally on the coasts of North Wales (*gueneei*) and Cornwall (*leechi*). It is found in scattered localities, some coastal, in southwestern Europe. Although Goater (1983) reports it from several sites in France, Nowacki & Fibiger (1996) do not. It is also reported from isolated sites in the Czech Republic, Italy (including Sicily), former Yugoslavia and Bulgaria.

**Status:** Very local resident.

**Conservation:** This species is vulnerable to habitat loss resulting from such activities as road construction leading to dumping of material on its very restricted breeding sites. Efforts should be made to establish whether it occurs elsewhere on the coasts of the Dingle peninsula or other parts of the Irish coast.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Luperina testacea*

**Species name:** *Luperina testacea* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: FLOUNCED RUSTIC.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *unca* (Haworth, 1809); *lunatostrigata* (Haworth, 1809); *x-notata* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Luperina testacea*); and only the male terminalia in Goater (1983). The separation of the three British *Luperina* spp. on wing pattern is discussed and illustrated by Heath (1972).

**Macrohabitats:** Dry calcareous and non-calcareous grassland; hay meadows; coastal grey dunes machair & dune slacks; vegetated sea-cliffs; fallow land; Atlantic saltmarsh.

**Adult microsites:** Rests concealed by day, but may often be found after dark on short vegetation (Goater, 1983).

**Flight Period:** In Ireland from late July to early September, but has been recorded at the end of September in West Mayo. For Britain, Goater (1983) gives August and September.

**Oviposition site:** Ova are laid in irregular rows on the lower parts of grass-stems (Goater, 1983).

**Larval microsites:** In stems of herb-layer plants and below ground on grass-roots.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): On the roots and stem-bases of various grasses, of which Skinner (1998) specifically mentions *Elymus* [*Agropyron*] and *Festuca* spp., as well as wheat (*Triticum aestivum*) and other cereals. Overwintering as a larva; with the larval stage lasting from September to June; pupating in a subterranean cocoon in July.

**Effectiveness of different sampling methods:** Found regularly at light-traps, sometimes in larger numbers at coastal sites, but apparently not attracted to flowers of sugar (Goater, 1983). Occasionally found at Malaise traps.

**Range:** Generally common over Ireland, especially on the coast, but in much of the north-west it seems to be less common and largely confined to the coast. Common over England and Wales, especially on lighter and sandy soils, more local in Scotland, but extending to the Outer Hebrides and Orkney. Widespread throughout mainland Europe, northwards to central Sweden, recorded from all countries except Albania and Turkey and Malta.

**Status:** Common resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Lycophotia porphyrea*

**Species name:** *Lycophotia porphyrea* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: TRUE-LOVER'S KNOT.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *strigula* (Thunberg, 1788), nec (Denis & Schiffermüller, 1775); *varia* (Villers, 1789); *ericae* (Donovan, 1801); nec (Hufnagel, 1766); *ericae* (Haworth, 1809); *suffusa* (Tutt, 1892); *birivia* sensu Turner, 1937.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Pachnobia porphyrea (strigula)/Lycophotia varia (strigula) (porphyrea)*).

**Macrohabitats:** Wet heath, dry heath (calcareous and non-calcareous); montane heath, raised bog blanket bog & cutover.

**Adult microsites:** Not indicated.

**Flight Period:** The main flight period is late June to early August, but in western districts the adult has been observed in late August and even September, but also occasionally as early as early June. The flight period in Britain is indicated as June to August, peaking in July (Goater, 1979).

**Oviposition site:** Not indicated.

**Larval microsites:** On low shrubs; among litter when not feeding.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): On *Calluna vulgaris* and *Erica cinerea*; feeding nocturnally and resting by day amongst leaf-litter under the foodplant which it closely resembles; feeding mainly in autumn and again more briefly spring, overwintering in larval diapause lasting from about November to March. Pupating in a subterranean cocoon in May.

**Effectiveness of different sampling methods:** Comes abundantly to light; also visits flowers of heather, but rarely comes to sugar (Goater, 1979).

**Range:** Widely distributed over Ireland, and abundant in heathery areas, especially near the west coast. It also appears in small numbers in other habitats, but, as indicated by Goater (1979), even isolated patches of the foodplant in gardens can support a small colony. Widespread in Britain and common in all heathery districts, extending to the Outer Hebrides and the Northern Isles. Generally distributed over Europe, apart from Albania, European Turkey and the Mediterranean islands; extending to the Lofoten Islands in Norway and to the northern shores of the Gulf of Bothnia in Sweden and Finland.

**Status:** Resident.

**Conservation:** Although this species has certainly lost habitat in some areas, its overall Irish status is not under threat.

**Compiler:** K. G. M. Bond. Date of compilation: 15<sup>th</sup> February 2006.

### *Mamestra brassicae*

**Species name:** *Mamestra brassicae* (Linnaeus, 1758) (*Phalaena (Noctua)*). English Name: CABBAGE MOTH.

Synonymy: *albidilinea* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Mamestra brassicae*). The separation of *S. albicolon* and *Mamestra brassicae* on wing pattern is illustrated in Heath (1971b).

**Macrohabitats:** Tall-herb forest clearings; crops, fallow land & field margins.

**Adult microsites:** Not indicated.

**Flight Period:** From about the middle of June to the middle of August. Lorimer (1979) states that the adult can be encountered in any month of the year, but is most common in June and July and again from late August to the end of September. There is no clear evidence for a second generation on the basis of Irish flight data.

**Oviposition site:** On the foliage of the foodplants.

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Nocturnal, feeding externally on a wide range of plants, but especially on *Brassica* spp., including cultivated forms. It occurs from June onwards, spending the winter in larval or pupal stage, some larvae feeding as late as April.

**Effectiveness of different sampling methods:** Commonly encountered at light-traps, but usually in small numbers.

**Range:** Widespread, and common in suburban and some agricultural areas, at least up to about 1980, but Thompson & Nelson (2003) and Cromie & Shepard (2003) suggest that it has been declining due to changes in agricultural and horticultural practices. The yearly pattern of records on the *Irish Noctuidae Database* strongly supports this view. Widespread in Britain and common in many areas; scarcer in Scotland, but extending to Shetland. Generally distributed over Europe, extending north to central Fennoscandia, and locally to northern Sweden.

**Status:** Resident, apparently in decline.

**Conservation:** Although this species seems to be in decline, it is largely dependent on artificial habitats, and is therefore not considered a conservation candidate.

**Compiler:** K. G. M. Bond. Date of compilation: 15<sup>th</sup> February 2006.

### *Melanchra persicariae*

**Species name:** *Melanchra persicariae* (Linnaeus, 1761) (*Phalaena* (*Noctua*)). English Name: THE DOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Mamestra persicariae*).

**Macrohabitats:** Rich-soil scrub; conifer plantations (*Abies/Larix/Picea*); scattered trees (*Salix*); tall-herb and grassy forest clearings; field margins, urban parks and ornamental gardens.

**Adult microsites:** Not known.

**Flight Period:** In Ireland generally from late June to early August, but has been recorded in late August in West Mayo. For Britain, Lorimer (1979) gives late June to August.

**Oviposition site:** Singly, or in a rather untidy mass, on the foodplant (Lorimer, 1979).

**Larval microsites:** On foliage of trees and on herb layer plants (gen.).

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally on a wide range of trees and herbaceous plants, particularly garden plants; Lorimer (1979) specifically mentions *Urtica* spp., low bushes of *Sambucus* spp., "rough-leaved willow" (*Salix* spp.), and *Larix decidua*, late August to October; pupating below ground in November and overwintering there in a cocoon.

**Effectiveness of different sampling methods:** Regularly found at light-traps, but only occasionally at Malaise Traps. The adult also visits flowers and sugar at night (Lorimer, 1979).

**Range:** This species is fairly common in the south and southwest, becoming more local in the east and west; there are few records from the midlands, and the species becomes still scarcer northwards, being unknown in Co. Donegal, and it is without recent records for Northern Ireland. In Britain it is common in the south but becomes progressively less so in Northern England, and there are only a few records from the south in Scotland. In mainland Europe it is found as far north as Southern Fennoscandia, but in the south-east it is known only from Romania and Bulgaria in the Balkans.

**Status:** Fairly common resident in the south, scarcer northwards.

**Conservation:** This species is probably under no significant threat in Ireland, as it seems to be capable of adapting to artificial habitats such as gardens.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Melanchra pisi*

**Species name:** *Melanchra pisi* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: BROOM MOTH.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *splendens* sensu Stephens, 1829; *scotica* (Tutt, 1902).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Hadena/Ceramica pisi*).

**Macrohabitats:** In *Betula* woodland (mature and saplings) and *Alnus* woodland; in poor-soil scrub; in *Abies/Larix/Pinus* plantations; on scattered trees (*Salix* and *Betula*); in tall-herb and grassy forest clearings; in unimproved dry non-calcareous grassland.

**Adult microsites:** The adult is concealed by day (Lorimer, 1979).

**Flight Period:** In Ireland from late May to mid-July generally, but adults have been seen in West Cork and West Kerry in early August; also once recorded in late September in Offaly, possibly a second brood. For Britain, Emmet gives late May to early July, while Goater has "from mid-June, slightly later in the north", and Skinner (1998) gives mid-May to July

**Oviposition site:** On the foodplant "in an untidy mess" (Lorimer, 1979)

**Larval microsites:** On trees, shrubs and herb layer plants; on the foliage.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991) (Skinner, 1991): Polyphagous, feeding from July to September on wide range of deciduous trees and shrubs, herbaceous plants, and ferns, especially *Pteridium aquilinum*, also reported as injurious to young larch (*Larix decidua*) in forest nurseries; late July to September, pupating in autumn in a subterranean cocoon where it overwinters.

**Effectiveness of different sampling methods:** Commonly found at both Mercury-vapour and Actinic light-traps, but only occasionally recorded from Malaise Traps. The moth is also found on flowers and honey-dew and at sugar (Lorimer, 1979).

**Range:** In Ireland it is widespread and common, particularly in open areas, and especially abundant in certain boggy areas. Generally common throughout Britain, northwards to Orkney. It is found throughout continental Europe, northwards to northern Fennoscandia, but is absent from Portugal, Albania and Turkey, and from the Mediterranean Islands; it is, however, recorded from Iceland.

**Status:** Common resident.

**Conservation:** This species appears to be under no specific threat in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Mesapamea didyma*

**Species name:** *Mesapamea didyma* (Esper, 1788) (*Phalaena* (*Noctua*)). English Name:

LESSER COMMON RUSTIC or REMM'S COMMON RUSTIC.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *secalis* sensu auctt.; ?*leucostigma* (Esper, 1788); ?*secalina* (Hübner, 1809); ?*furca* (Haworth, 1809); ?*rava* (Haworth, 1809); ?*i-niger* (Haworth, 1809); ?*oculea* sensu (Haworth, 1809); ?*lugens* (Haworth, 1809); *secalella* Remm, 1983. Note: see remarks under *M. secalis* (Linnaeus).

Subspecific status: None.

**Identification:** Illustrated by Brooks (1991) (as *Mesapamea secalella*) and Skinner (1998); Heath & Emmet (1983) illustrate a number of forms of "*Mesapamea secalis*", some of which may represent specimens of *M. didyma*. Examination of the terminalia is considered necessary for separation of the two species. The name "Lesser Common Rustic" for *M. didyma* is unhelpful, as any size difference between the species is insignificant, at least in Irish specimens. The terminalia are

illustrated in several recent publications including Coenen & de Prins (1984); Fibiger & Svensden (1983); Palmqvist (1985) (female terminalia and spermatophore only) and Rezbanyai-Reser (1985).

**Macrohabitats:** Probably as *Mesapamea secalis*, viz. grassy forest clearings/tracksides; dry calcareous & non-calcareous grassland; lightly-grazed improved grassland & hay meadows; coastal grey dunes; fallow land, field margins & urban parks.

**Adult microsites:** Presumably as *M. secalis*: "Resting concealed by day, usually amongst vegetation" (Goater, 1983).

**Flight Period:** From the end of June to late August; an exceptionally late individual was recorded in Kerry on 28 Sept. 1985, in a late season. Although Skinner (1998) states "perhaps emerging a few days earlier [than *M. secalis*]" but there is no detectable difference in the Irish flight season of the two species.

**Oviposition site:** In short rows in sheathes of grasses (Goater, 1983).

**Larval microsites:** In the stems of herb layer plants, later in tussocks of grasses.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Assumed to be as for *M. secalis*: Prior to overwintering, in the stems of various grass species, including *Festuca arundinacea*, *Dactylis glomerata*, *Holcus mollis*, *Deschampsia cespitosa*, and *Luzula pilosa*, also sometimes a pest of wheat (*Triticum aestivum*); in spring it feeding on the unopened grass flowers within the leaf-sheaths. September to May, overwintering as a larva within the stems; pupating in a subterranean cocoon about May.

**Effectiveness of different sampling methods:** Regularly taken at both Actinic and Mercury-vapour light-traps, and probably often in numbers, but difficult to assess, as it probably nearly always occurs with *M. secalis*, from which it cannot be separated with certainty in the field. Fairly regularly recorded from Malaise Traps (all specimens have been checked). The species aggregate, *M. didyma*/*M. secalis* has also been recorded coming freely to flowers, sugar and honey-dew after dark (Goater).

**Range:** Common throughout Ireland, in a wide range of habitats. It was separated from *M. secalis* as recently as 1983, but dissection of both recent and museum specimens confirm that it has always been a widespread species here. There is at present no detectable difference in habitat choice between *M. didyma* and *M. secalis* in Ireland. Apparently common and widespread in Britain. It has so far been detected in all European mainland countries with the exception of Portugal, and Turkey, extending into southern Fennoscandia.

**Status:** Common resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004

### *Mesapamea secalis*

[much of the information is identical to that given under *M. didyma*, as there are at present no recognised differences in the biology of the two species]

**Species name:** *Mesapamea secalis* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: COMMON RUSTIC.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *?leucostigma* (Esper, 1788); *?secalina* (Hübner, 1809); *?furca* (Haworth, 1809); *?rava* (Haworth, 1809); *?i-niger* (Haworth, 1809); *?oculea* sensu (Haworth, 1809); *?lugens* (Haworth, 1809). Note: the names listed here have previously been synonymised as forms of *M. secalis*. It is possible that some of these should be applied to *M. didyma* (Remm).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998), but examination of the genitalia is usually considered necessary for reliable separation from *M. secalis*, and some of the illustrations under this species name in publications before 1984 may actually be of specimens of *M. didyma*. The terminalia are illustrated in Pierce (1909, 1942) (as *Crymodes oculea* (*didyma*)/*Celaena secalis* (*oculea*) (*didyma*)) and are illustrated for comparison with those of *M. didyma* in Coenen (1984); Fibiger & Svendsen (1983); Palmqvist (1985) (female and spermatophore only); Rezbanyai-Reser (1985).

**Macrohabitats:** Grassy forest clearings/tracksides; dry calcareous & non-calcareous grassland; lightly-grazed improved grassland & hay meadows; coastal grey dunes; fallow land, field margins & urban parks.

**Adult microsites:** "Resting concealed by day, usually amongst vegetation" (Goater, 1983).

**Flight Period:** In Ireland from early July to late August, or occasionally early September. This is similar to that found in Britain.

**Oviposition site:** In short rows in sheathes of grasses (Goater, 1983).

**Larval microsites:** In the stems of herb layer plants, later in tussocks of grasses.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Prior to overwintering, in the stems of various grass species. Goater (1983) gives the following specific foodplants for the species aggregate: *Festuca arundinacea*, *Dactylis glomerata*, *Holcus mollis*, *Deschampsia cespitosa*, and *Luzula pilosa*, and adds that it is sometimes a pest of wheat (*Triticum aestivum*). In spring it feeds on the unopened grass flowers within the leaf-sheaths. September to May, overwintering as a larva within the stems; pupating in a subterranean cocoon about May.

**Effectiveness of different sampling methods:** Regularly taken at both Actinic and Mercury-vapour light-traps, and probably often in numbers, but difficult to assess, as it probably nearly always occurs with *M. secalis*, from which it cannot be separated with certainty in the field. Fairly regularly recorded from Malaise Trap (all specimens have been genitally checked). The species aggregate, *M. didyma*/*M. secalis* has also been recorded coming freely to flowers, sugar and honey-dew after dark (Goater, 1983).

**Range:** Widespread throughout Ireland. Although recently separated from *M. didyma*, and only reliably separable by examination of the genitalia, there is little doubt that this species is common



in all parts. Widespread and common throughout Britain. Recorded from all European countries except Iceland and Turkey.

**Status:** Common resident.

**Conservation:** As with *M. didyma*, this species does not appear to be under threat in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Mesoligia furuncula*

**Species name:** *Mesoligia furuncula* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: CLOAKED MINOR.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *bicoloria* (Villers, 1789); *humeralis* (Haworth, 1809); *terminalis* (Haworth, 1809); *rufuncula* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Capinostola furuncula/Procus bicoloria*). The male genitalia are also illustrated in Heath & Cooke (1969).

**Macrohabitats:** Dry unimproved calcareous grassland; coastal grey dunes.

**Adult microsites:** Not indicated, apart from "pairs may be found *in copula* on grass-stems [just before dusk]" (Goater, 1983).

**Flight Period:** Based on thirteen records in the *Irish Noctuidae Database*, the Irish flight period is from early July to late August. For Britain, Goater (1983) gives late July, August and September, while Skinner (1998) gives late July to early September. Males regularly fly by day as well as nocturnally.

**Oviposition site:** Not stated.

**Larval microsites:** On low-growing plants of the herb layer; within the stems.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): In stems of various grasses, but mainly in *Deschampsia cespitosa*, *Festuca arundinacea* and *Arrhenatherum elatius*. The duration and activity of the larval stage is uncertain, but it probably overwinters within the grass-stems, possibly in diapause (Emmet, 1991), pupating the following June in a cocoon in a cavity eaten out by the larva in the base of the foodplant.

**Effectiveness of different sampling methods:** Fairly frequently taken at light-traps, but the adults can quite often also be found by day on vegetation. Indeed, Goater (1983) reports that the males have a vigorous late afternoon flight which extends to just before dusk, when mating pairs can be found on grass-stems; while after dark both sexes come to sugar and grass-flowers, especially marram (*Ammophila arenaria*).

**Range:** Found locally on and near the coast, and mainly in the southern half of Ireland, although there are records inland in north Armagh. It has not been seen for some decades in Co. Donegal.

In Britain it is common in coastal areas, less so inland; becoming scarcer and more local in northern England and Scotland. It is recorded from all mainland European countries except Albania, but in Fennoscandia it is confined to southern parts and almost entirely coastal.

**Status:** Local resident.

**Conservation:** This species is likely to be under threat locally due to loss of natural coastal grassland associated with golf course development, etc.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Mesoligia literosa*

**Species name:** *Mesoligia literosa* (Haworth, 1809) (*Noctua*). English Name: ROSY MINOR.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Tapinostola/Miana literosa*). The male genitalia are also illustrated in Heath & Cooke (1969).

**Macrohabitats:** Dry calcareous grassland; coastal *Ammophila* dunes, grey dunes & machair.

**Adult microsites:** "Rests concealed by day" (Goater, 1983).

**Flight Period:** Late July to the end of August.

**Oviposition site:** Not stated.

**Larval microsites:** Initially in the roots of grasses, after overwintering, in the stems of grasses.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): On various grasses, among which Goater (1983) mentions in particular *Festuca ovina* agg., *Dactylis glomerata*, *Ammophila arenaria*, and *Leymus arenarius* and *Carex flacca*; as well as various cereals; September to June, overwintering in the stems; and pupating in a thin silken subterranean cocoon later in June.

**Effectiveness of different sampling methods:** The adults can be found at light-trap, and occasionally by day, although Goater (1983) states that it "rests concealed by day"; and by night also visits ragwort (*Senecio jacobaea*), sugar and honey-dew.

**Range:** Locally common in many coastal areas, but also occasionally found inland, especially in Ulster. Widespread in Britain, but more especially in chalky and limestone areas, but also occurring locally to northern Scotland. Widespread in Europe, but distinctly local in many countries, being montane in the south, and almost entirely coastal in Fennoscandia, where it is restricted to southern parts.

**Status:** Local resident.

**Conservation:** This species seems to be under little threat in Ireland, but losses of unimproved calcareous and coastal grassland due to golf courses, caravan parks, etc. may pose a threat locally.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

***Mniotype adusta***

**Species name:** *Mniotype adusta* (Esper, 1790) (*Phalaena* (*Noctua*)). English name: DARK BROCADE.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *duplex* (Haworth, 1809).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Hadena/Eumichtis adusta*).

**Macrohabitats:** Humid/flooded eutrophic & oligotrophic grassland; acid fen & fen carr; raised bog, blanket bog and cutover bog.

**Adult microsites:** Not indicated.

**Flight Period:** In Ireland early June to mid-July. For Britain, Lorimer (1983) states that it has a long flight period from late May to early August, but no recent Irish records are later than July 17<sup>th</sup>.

**Oviposition site:** On the leaves of the foodplants in small clusters (Goater, 1983).

**Larval microsites:** On foliage of trees, shrubs/bushes/saplings, tall herbs, and low-growing plants.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Polyphagous, feeding nocturnally on a wide range of trees, shrubs and herbaceous plants, especially those found in damp localities; Goater specifically mentions *Myrica gale*, *Salix caprea*, *Alnus glutinosa*, *Polygonum aviculare*, *Crataegus* spp., *Silene vulgaris* as well as unspecified grasses and heather. Feeding from July onwards into the autumn; overwintering in larval diapause in a subterranean cocoon and pupating there in April.

**Effectiveness of different sampling methods:** Can be found at light-traps, sometimes in large numbers in damp or boggy habitats. Occasionally recorded from Malaise Traps. It is also reported to come to sugar and light (Lorimer, 1983).

**Range:** Widespread over Ireland, but there are few records from the south-east and Midlands, and it is much more common in the west and north-west than elsewhere. In Britain it is widespread, but also more common in the north, extending to Shetland and St Kilda; it has also shown a recent decline in the south. Recorded from all European countries except Albania, but including Iceland. It is, however, local and largely montane in southern Europe, while in Fennoscandia it extends to the far north.

**Status:** Fairly common resident.

**Conservation:** This species does not appear to be under threat in its main, western area of distribution. In its more isolated colonies in the rest of the country it is vulnerable to loss of wetlands and agricultural improvements.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

*Mormo maura*

**Species name:** *Mormo maura* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: OLD LADY.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Mania/Mormo maura*).

**Macrohabitats:** Mature and sapling acidophilous *Quercus*; rich-soil scrub; scattered *Salix* & *Betula* trees; tall-herb forest clearings; hedges & urban parks.

**Adult microsites:** Roosts during the day in old buildings and sheds, under loose bark, and in holly trees, sometimes in numbers (Skinner, 1998), especially near streams and rivers (Goater, 1983).

**Flight Period:** The three records on the *Irish Noctuidae Database* range from early to late August. For Britain, Goater (1983) gives July and August.

**Oviposition site:** Not stated.

**Larval microsites:** On low-growing plants of the herb layer prior to winter diapause; in the spring following diapause, on foliage of trees, in particular on shrubs/bushes/saplings and understory trees, also on upward-climbing lianas.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Prior to overwintering, on forbs such as *Stellaria media*, *Fragaria vesca* and *Rumex* spp.; following diapause on shrubs and small trees including *Prunus spinosa*, *Salix* spp., *Betula* spp., *Euonymus japonica*, also on *Hedera helix*. The larva feeds nocturnally, in September and in the following April to June, on the foliage. The site in which it spends overwintering diapause is not indicated, but as the larva descends to hide in the soil by day, even during the feeding season, it is likely to be in the soil. Pupating in a "spacious fragile cocoon" (Goater, 1983) in the soil or occasionally on tree bark.

**Effectiveness of different sampling methods:** Not greatly attracted to light-traps, and Goater (1983) reports that it flies around Mercury-vapour light-traps without often entering them (also observed in Ireland, pers. obs.). The moth flies at dusk, when it comes to sugar, exudations of sap and honey-dew, but it is not noted at flowers (Goater, 1983). The adults are, however, quite often found roosting by day.

**Range:** This species is distributed very locally from north to south, but mainly in the more wooded areas of the west. There are few records for the midlands and east, apart from the Dublin area. It may, however, be under-recorded as it does not enter light-traps as readily as most Noctuids. In Britain it is locally common in England and Wales, but most generally distributed west and southwest of London. It is very locally distributed in Scotland, northwards to the Moray Firth, and west to Mull. Generally distributed in central and southern Europe, but becoming scarcer northwards only to Denmark and Poland, and absent from north-western Germany.

**Status:** Rather local resident.

**Conservation:** This species is probably under relatively little threat, but lack of knowledge of its precise ecological requirements make an assessment difficult.

**Compiler:** K.G.M. Bond. Date of compilation: 24<sup>th</sup> November 2004.

### *Mythimna comma*

**Species name:** *Mythimna comma* (Linnaeus, 1761) (*Noctua (Phalaena)*). English Name: SHOULDER-STRIPED WAINSCOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *suffusa* (Turner, 1929).

Subspecific status: None.

**Identification:** Illustrated in Heath & Emmet (1979), Brooks (1991), Skinner (1998), and several other British publications. The terminalia are illustrated in Pierce (1909, 1942) (as *Leucania comma*).

**Macrohabitats:** Coastal grey dunes; field margins.

**Adult microsites:** Diurnally concealed, but found on flowers from late dusk (Lorimer, 1979).

**Flight Period:** In Ireland from the beginning of June to the middle of July, but isolated specimens have been towards the middle of August in north-west Donegal and Offaly. Lorimer (1979) gives the end of May to the latter part of June as the flight period in Britain, but adds that occasional late autumn specimens occur, and Koch (1984) states that a 2<sup>nd</sup> generation occurs in warm localities (in Germany).

**Oviposition site:** Laid in untidy rows in leaf-axils or folded blades of grasses (Lorimer, 1979).

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeds nocturnally on grasses, especially *Dactylis glomerata*, also reported from *Rumex* spp. From August; it enters the soil in autumn entering larval diapause in a cocoon well below ground, pupating the following April (Lorimer, 1979).

**Effectiveness of different sampling methods:** Has been found in small numbers at Mercury-vapour light-trap, also comes to sugar after dark.

**Range:** This species seems to be widely scattered at a low density over the eastern half of Ireland. It seems to be scarce in the south, and totally absent from Clare, Kerry, West Galway and Mayo. In Britain it widely distributed in England and Wales; it extends to eastern Scotland as far north as the Dornoch Firth, but, as in Ireland, it is totally absent from the west, apart from one site on Islay. It is recorded from all mainland European countries except Portugal and Turkey, extending to northern Scandinavia.

**Status:** Rather local resident.

**Conservation:** As its precise ecological requirements are poorly understood, it is very difficult to assess the main threats to this species in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 22<sup>nd</sup> November 2005.

*Mythimna conigera*

**Species name:** *Mythimna conigera* (Denis & Schiffermüller, 1775) (*Noctua*). English NAME: BROWN-LINE BRIGHT-EYE.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Leucania/Mythimna conigera*).

**Macrohabitats:** Grassy forest clearings; dry calcareous & non-calcareous grassland & hay meadows; coastal *Ammophila* & grey dunes; field margins.

**Adult microsites:** Not indicated.

**Flight Period:** In Ireland from the end of June to mid-August, with occasional specimens in late August.

**Oviposition site:** Ova are laid side by side in single or double rows in folded blades of grasses (Lorimer, 1979)

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): On grasses, especially *Dactylis glomerata*, and *Elytrigia repens*; Emmet includes *Festuca ovina*, while Skinner adds *Poa* spp. September to the following May; it overwinters in larval diapause, probably at the base of the foodplant, and feeds again in the spring; pupating in a subterranean cocoon in May.

**Effectiveness of different sampling methods:** The moth is regularly taken at light-traps, usually in small numbers, but occasionally in large numbers on sand-dunes and calcareous grassland; it also visits various flowers, and comes to sugar.

**Range:** Widespread over Ireland, and fairly common in much of the south. It is scarcer in the northern half of the country, and rare or absent in much of the north-west. It has been found in abundance at one site on the south Wexford coast. In Britain it generally common in the south of England, the midlands and Wales, becoming somewhat scarcer northwards, and extending to the north of the Scottish mainland. It is widely distributed and often common in mainland Europe, unrecorded from only Portugal and Albania; extending to southern and central Fennoscandia.

**Status:** Common resident in the south, but scarce or absent in much of the north.

**Conservation:** Although it is difficult to assess the threats to this species in Ireland, loss of unimproved grassland is likely to be the main one.

**Compiler:** K.G.M. Bond. Date of compilation: 22<sup>nd</sup> November 2005.

*Mythimna ferrago*

**Species name:** *Mythimna ferrago* (Fabricius, 1787) (*Phalaena* (*Noctua*)). English Name: THE CLAY.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *lythargyria* (Esper, 1788); *lithargyrea* misspelling; ?*grisea* (Fabricius, 1794).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Leucania/Mythimna lithargyria*).

**Macrohabitats:** Grassy forest clearings; dry calcareous and non-calcareous grassland; coastal grey dunes and dune-slacks; field margins.

**Adult microsites:** Not indicated.

**Flight Period:** In Ireland from early July to late August.

**Oviposition site:** "Laid side by side in single or double rows in a folded grass blade (often withered outer growth) or inserted into the leaf-axils" (Lorimer, 1979).

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Mainly on grasses, but sometimes on other herbs, including *Stellaria media*, *Taraxacum* agg., and *Plantago* spp. From September; the larva enters diapause and overwinters when small, probably at the base of the foodplant, feeding again in April and May; pupating in a subterranean cocoon in June.

**Effectiveness of different sampling methods:** Commonly encountered at both mercury-vapour and Actinic light-traps, usually in small numbers. The moth also comes to flowers, honey-dew and sugar (Lorimer, 1979).

**Range:** Common in much of the south, especially the extreme south, becoming less common northwards, and apparently scarce in the midlands; more or less totally unknown in the north-west. It is more or less common over most of England and Wales, but more local in Scotland, becoming very local in the west and absent from the north-west. Generally distributed and often common throughout Europe, extending northwards to southern and central Fennoscandia.

**Status:** Common resident in the south, becoming progressively rarer towards the north and northwest.

**Conservation:** Although this species appears to under little threat in Ireland, data suggest that it has become less common over recent decades. Loss of unimproved grassland is likely to be the main threat.

**Compiler:** K.G.M. Bond. Date of compilation: 22<sup>nd</sup> November 2005.

***Mythimna impura***

**Species name:** *Mythimna impura* (Hübner, 1808) (*Leucania*). English Name: SMOKY WAINSCOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *fuliginosina* (Haworth, 1809); *punctina* (Haworth, 1809).

Subspecific status: None, but Kloet & Hincks (1972) treated the form *scotica* (Cockayne, 1944) as a subspecies. This form occurs most commonly in the north and west of Britain and Ireland, but also occurs with varying frequency throughout the range (Lorimer, 1979).

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Leucania/Mythimna impura*).

**Macrohabitats:** Grassy forest clearings/tracksides; dry calcareous and non-calcareous grassland; lightly grazed improved grassland; coastal grey dunes and machair; fallow land, field margins & urban parks; coastal and non-coastal *Phragmites* reedbeds.

**Adult microsites:** Not stated.

**Flight Period:** In Ireland from early July to early September, but occasionally as late as late September. Skinner (1998) gives June to August in Britain, but an occasional and partial second generation in southern England from mid-September to mid-October.

**Oviposition site:** Ova are laid side by side in rows in the leaf-axils, folded blades or withered leaves of grasses (Lorimer, 1979).

**Larval microsites:** On tall herbs and low-growing plants of the herb layer, and on grass tussocks.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeds nocturnally on a wide range of grasses, including *Dactylis glomerata*, *Poa annua*, *Deschampsia cespitosa*, *Phragmites australis*, *Luzula pilosa* and *Luzula campestris*. From September, the larva overwinters when small and hibernates, probably at the base of the foodplant, resuming feeding in April, and pupating in a subterranean cocoon in May.

**Effectiveness of different sampling methods:** The moths are found, often in large numbers in all types of light-trap; also comes to flowers and sugar (Lorimer, 19879). It has also been found frequently, often in large numbers at Malaise traps.

**Range:** Common throughout Ireland in a wide range of grassland localities, including coastal sites and some raised and blanket bogs. In Britain it is common over a wide range of habitats, but is reported uncommon on acid moorland; becoming more local and largely coastal in northern Scotland, extending to Shetland. In Europe it is generally distributed, extending northwards to southern and central Fennoscandia, but in the south it has not been recorded from Portugal, Romania, Albania or Turkey.

**Status:** Abundant resident.

**Conservation:** As this species remains common over a wide range of habitats in Ireland, it is not considered to be under threat.

**Compiler:** K.G.M. Bond. Date of compilation: 22<sup>nd</sup> November 2004.



*Mythimna litoralis*

**Species name:** *Mythimna litoralis* (Curtis, 1827) (*Leucania*). English name: SHORE WAINSCOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *littoralis* misspelling.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Leucania/Mythimna littoralis*).

**Macrohabitats:** Coastal *Ammophila* dunes.

**Adult microsites:** The moths hide by day among marram or under dune overhangs, at night on flowering grasses.

**Flight Period:** In Ireland early July to early August. For Britain, Skinner (1998) gives late June to August.

**Oviposition site:** Ova are laid side by side in rows in a folded blade of the foodplant.

**Larval microsites:** On tall strong plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): The larva feeds at night on *Ammophila arenaria*, but hides by day in sand. It overwinters in diapause, well buried in the sand, and feeds again in the spring; September to May, when it pupates in a cocoon within the sand.

**Effectiveness of different sampling methods:** The moths are attracted to Actinic or Mercury-vapour light-traps in their restricted macrohabitat. They are also attracted to flowering grasses "or sugared marram" (Lorimer, 1979)

**Range:** Found locally on well-developed coastal sand-dunes throughout Ireland; there are, however, only a few recent records from the north and east coasts. In Britain it is found locally on sandy coasts, extending north to Angus in the east and Galloway in the west. It is found on the coasts of Western Europe from Portugal to Denmark, extreme southern Sweden and Poland.

**Status:** Local coastal resident.

**Conservation:** As this is a very local species, loss of its sand-dune habitat due to golf-course construction, caravan sites and holiday homes poses a significant threat.

**Compiler:** K.G.M. Bond. Date of compilation: 22<sup>nd</sup> November 2004.

*Mythimna pallens*

**Species name:** *Mythimna pallens* (Linnaeus, 1758) (*Phalaena (Noctua)*). English Name: COMMON WAINSCOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *rufescens* (Haworth, 1809); *arcuata* (Stephens, 1829); *suffusa* (Stephens, 1829); *ochracea* (Stephens, 1829).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Leucania/Mythimna pallens*).

**Macrohabitats:** Dry unimproved calcareous grassland; field margins.

**Adult microsites:** Not indicated, apart from "hides by day" (Lorimer, 1979).

**Flight Period:** In Ireland from late June to late August; occasional September records may represent a second generation, which is reported to occur regularly in southern Britain (Skinner, 1998).

**Oviposition site:** Ova are laid side by side in single or double rows in the leaf-axils or folded blade of grasses.

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): The larvae feed gregariously by night on grasses, the main ones being *Dactylis glomerata*; *Elytrigia repens*, *Deschampsia cespitosa* and *Poa annua*. Initially they feed in groups of five to ten in spun terminal blades, but later they hide among the roots by day. Univoltine, from late June, larvae overwinter in diapause, presumably also in the roots, and feed again in the spring; September to May, when they pupate in a subterranean cocoon.

**Effectiveness of different sampling methods:** Regularly taken at light-trap, at least Mercury-vapour trap, and until 2000, up to which time there was little recording by Actinic trap on the *Irish Noctuidae Database*. From late dusk it is reported to feed on flowers, flowering grasses and sugar (Lorimer, 1979).

**Range:** Common over much of Ireland at least in the south and east, becoming scarcer and more local in the west, north and midlands, and scarce and local in the northwest. Information contained in the *Irish Noctuidae Database* would suggest that this species has declined significantly in the period 1980-2004. Common over England, Wales and southern Scotland, becoming more local further north, but extending to Shetland. It is common and widespread over continental Europe, extending to central Fennoscandia, but has not been reported from Portugal, Albania or Turkey.

**Status:** Common resident in the south and east of Ireland, at least until recently, much less common elsewhere.

**Conservation:** Although still widespread over much of Ireland, its apparent recent decline is probably due to losses of unimproved grassland.

**Compiler:** K.G.M. Bond. Date of compilation: 22<sup>nd</sup> November 2005.

### *Mythimna pudorina*

**Species name:** *Mythimna pudorina* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: STRIPED WAINSCOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *impudens* (Hübner, 1803).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Leucania/Mythimna pudorina*).

**Macrohabitats:** Humid/flooded oligotrophic *Molinia* grassland; transition mire; coastal & non-coastal *Phragmites* reedbeds; reed/tall sedge beds.

**Adult microsites:** Not indicated.

**Flight Period:** In Ireland mid-June to early July. For Britain, Skinner (1998) extends this to mid-July.

**Oviposition site:** Not indicated.

**Larval microsites:** On low-growing plants of the herb layer; on tussocks of grass.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): On grasses, including *Phragmites australis*; *Luzula pilosa*; *Molinia caerulea*; *Carex pulicaris* and *Dactylis glomerata*. It appears to feed very low on the plants, as Wightman (1943) reports that the larva does not climb to feed, but raises only the anterior segments; this seems to be at variance with the indicated external feeding behaviour on such plants as *Phragmites australis*! August to the following May when it pupates in litter. Overwintering in larval diapause.

**Effectiveness of different sampling methods:** The moth has been taken in small numbers on a several occasions at Mercury-vapour light-trap. It is reported to feed after dark at flowering grasses such as floating sweet-grass (*Glyceria fluitans*) and others that have been sugared (Lorimer, 1979).

**Range:** This species is confined to a relatively small number of reedbed sites in the southern half of the country, the main ones including the Killarney area; the shores of Lough Corrib, Co. Galway; Pollardstown Fen, Co. Kildare and the reedbeds of east Wicklow. Locally distributed in reedbeds in southern Britain, extending very locally to mid-Wales and east Yorkshire. It is widespread but local over most of Europe, and associated with damp woodland; extending to the south of Sweden and Finland, but it is not recorded from Portugal or the southern Balkans.

**Status:** Local resident.

**Conservation:** This species is vulnerable to any loss of reedbeds at its few known sites.

**Compiler:** K.G.M. Bond. Date of compilation: 22<sup>nd</sup> November 2005.

### *Mythimna straminea*

**Species name:** *Mythimna straminea* (Treitschke, 1825) (*Leucania*). English Name: SOUTHERN WAINSCOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *vectis* (Curtis, 1833).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Leucania/Mythimna straminea*).

**Macrohabitats:** Coastal & non-coastal *Phragmites* reedbeds.

**Adult microsites:** The moth hides low down by day, on flowering grasses by night (Lorimer, 1979).

**Flight Period:** In Ireland from late June to mid-August. For Britain, Skinner (1998) gives July and August.

**Oviposition site:** On leaves of *Phragmites* and *Phalaris* spp. in rows (Lorimer, 1979).

**Larval microsites:** On tall strong plants of the herb layer, (but day is spent in stems of herb layer plants),

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeds externally at night on *Phragmites australis* and *Phalaris* spp. During the day it hides in hollow reed stems; it overwinters in diapause and feeds again in the spring. September to June when it pupates in a subterranean cocoon.

**Effectiveness of different sampling methods:** The moth comes to Mercury-vapour light-trap in small numbers; at night it also feeds at flowering grass and on reeds which have been sugared (Lorimer (1979).

**Range:** Confined to larger reedbeds, and very scarce in the northern half of Ireland. Among its recent sites are Pollardstown Fen, Co. Kildare, and Ballyvergan and Kilcolman in Co. Cork; also Cronykeery, near Ashford, and Arklow, both Co. Wicklow, and Ballinoulart, Co. Wexford. In Britain this species is found locally in wet areas, including fens, in England and Wales, but is very local outside parts of southern England, and scarce in northern England, as far north as southern Cumbria. Locally distributed over Europe, extending to southern Fennoscandia, but scarce in many areas; but apparently absent from Portugal and Turkey.

**Status:** Very local resident.

**Conservation:** As with *M. pudorina*, this species is vulnerable to any loss of reedbeds at its few known sites.

**Compiler:** K.G.M. Bond. Date of compilation: 22<sup>nd</sup> November 2004.

### *Naenia typica*

**Species name:** *Naenia typica* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: THE GOTHIC.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Mania/Phalaena typica*).

**Macrohabitats:** On rich soil scrub and scattered *Salix*; in field margins and transition mires.

**Adult microsites:** "Rests concealed by day, usually on the ground but sometimes inside buildings" (Goater, 1979).

**Flight Period:** From about mid-July to mid-August; rarely as early as the beginning of July or in late August. For Britain, Goater (1979) and Emmet (1991) indicate June and July as the flight season.

**Oviposition site:** On foliage of the foodplant in clusters, usually on the upper surface.

**Larval microsites:** On herb layer plants and trees, on the foliage.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeding from late July, when it is gregarious, occurring in large groups on the undersides of leaves, until the following spring, when the solitary larva feeds nocturnally on herbs, shrubs and deciduous trees, including *Taraxacum* agg., *Rumex*, *Sonchus* and *Salix* spp., *Malus sylvestris* and *Prunus spinosa*, pupating in a subterranean cocoon in April.

**Effectiveness of different sampling methods:** Has been taken in small numbers at light-traps. According to Goater (1979), it has been recorded commonly at privet bloom, and comes freely to sugar soon after dusk, but "seldom comes to light".

**Range:** Widely distributed, but local, and usually found in only small numbers. There are very few records from the southwest and the Midlands. Widespread in England, but with some decline in recent years (Goater, 1979). It is more local in Wales and Scotland, also occurring in the Inner Hebrides. Generally distributed over western and central Europe, apart from Portugal; also recorded from Italy, and in the Balkans from Romania, Bulgaria and Greece; extending north to southern Norway, and to around the north of the Gulf of Bothnia in Sweden and Finland.

**Status:** Local resident.

**Conservation:** There is some indication that this species is in decline, as in Britain (Goater, 1979), and its current Irish status needs to be investigated.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Noctua comes*

**Species name:** *Noctua comes* Hübner, 1813. English Name: LESSER YELLOW UNDERWING.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *consequa* sensu Curtis, 1831; *curtisii* (Newman, 1844); *orbona* sensu Pierce, 1909.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Triphaena orbona (comes)/comes (orbona)*).

**Macrohabitats:** Mature and sapling *Betula* forest; poor soil scrub (gen.) and rich-soil scrub; *Betula/Pinus* wet woods and *Salix* swamp; scattered *Betula* and *Salix* trees, tall-herb forest clearings, unimproved dry calcareous grassland; siliceous heath; coastal grey dunes, dune-sacks and machair, field margins, hedges & urban parks; transition mire; cutover bog.

**Adult microsites:** Not indicated, but "rests concealed by day" (Goater, 1979).

**Flight Period:** Late July to about mid-September, with occasional specimens flying as late as mid-October. In Britain it is reported to fly from July to September (Goater, 1979).

**Oviposition site:** Unknown.

**Larval microsites:** On trees, shrubs and herb-layer plants.

**Food and feeding habitats** (Goater, 1979); Emmet, 1991); (Skinner, 1998): Feeding externally at night on a range of trees, shrubs and herbaceous plants, of which Goater (1979) specifically mentions *Crataegus* spp., *Betula* spp., *Salix* spp., *Calluna vulgaris*, *Primula vulgaris*, *Digitalis purpurea* and *Rumex* spp.; Skinner also includes *Prunus spinosa*.

**Effectiveness of different sampling methods:** Found commonly at light-traps, also attracted to sugar and flowers.

**Range:** Generally distributed and common in many localities in Ireland. Common throughout Britain, extending to the Outer Hebrides and Shetland. Generally distributed over central, southern and western Europe, extending to southwestern parts of Fennoscandia, to about Trondheim in Norway, but only to about 60°N in Sweden and Finland.

**Status:** Resident.

**Conservation:** This Irish status of this species appears to be stable and unthreatened.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Noctua fimbriata*

**Species name:** *Noctua fimbriata* (Schreber, 1759) (*Phalaena*). English Name: BROAD-BORDERED YELLOW UNDERWING.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *fimbria* (Linnaeus, 1767).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Triphaena fimbria/Lampra fimbriata (fimbria)*).

**Macrohabitats:** *Betula* forest (gen.), softwood alluvial forest & scattered trees (*Salix*, *Acer pseudoplatanus* and *Betula*); urban parks.

**Adult microsites:** Not known.

**Flight Period:** Thompson & Nelson (2003) give end of June to mid-September in Northern Ireland. For Britain, Goater (1979) gives July onwards to late August, and a few specimens as late as the end of September, but also aestivating in July and reappearing in late August. The few records on the *Irish Noctuidae Database* are from around mid-August.

**Oviposition site:** Not known in the wild; "in neat batches" (Goater, 1979).

**Larval microsites:** On trees, shrubs and forbs; on the foliage. After overwintering on the ground, also on opening buds of trees.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeding at first, in autumn on the foliage of *Betula* spp., *Salix* spp. and several other tree species; remaining on the tree until the approach of winter, when it descends to the ground to overwinter (Newman 1869, quoted by Goater (1979)). Emmet (1991) and Skinner (1998) also mention other shrubs and herbaceous plants. In spring it also feeds on the opening buds of *Acer pseudoplatanus*, pupating in a subterranean cocoon in May. Winter is spent in larval diapause.

**Effectiveness of different sampling methods:** Comes to light-traps, but only in small numbers; also reported to come to sugar.

**Range:** Although it may be fairly widely distributed, there are very few records at light-traps, and very few from the southern part of the country. It is probably most common in east Ulster. Widespread in Britain, extending northwards to the Moray Firth. It is commonest in the south and southeast of England. Generally distributed over southern, western and central Europe; extending in Norway to near Oslo, also to southern Finland, and locally to about 64°N in Sweden.

**Status:** Local resident.

**Conservation:** In view of the paucity of recent records from most parts of Ireland, the status of the species needs to be further investigated.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Noctua interjecta*

**Species name:** *Noctua interjecta caliginosa* Schawerda, 1919 [*interjecta interjecta* Hübner, 1803].  
English Name: LEAST YELLOW UNDERWING.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: British and Irish specimens are placed in subsp. *caliginosa* (Schawerda, 1919). According to Goater (1979) the nominate subspecies differs from subsp. *caliginosa* "in the paler coloration without reddish tint of the forewing, and the paler yellow hindwing, which has a narrower border without dark rays and less dark suffusion on the underside".

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Triphaena interjecta*).

**Macrohabitats:** Scattered trees (*Salix*), unimproved grassland; coastal grey dunes, dune slacks, dune scrub & machair.

**Adult microsites:** Not indicated, but usually rests concealed by day.

**Flight Period:** Mid-July to mid-August, rarely as late as late August or early September; in Britain flying in July and August (Goater, 1979).

**Oviposition site:** Unknown in the wild.

**Larval microsites:** On trees and herbs, only on the former in spring.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeding externally on various grasses and other forbs. According to Goater (1979) these include *Malva sylvestris*, *Primula vulgaris*, and *Rumex* spp.; in spring also on the opening buds of *Salix* spp.; September to May, pupating about June in a subterranean cocoon.

**Effectiveness of different sampling methods:** Comes to light-traps in moderate numbers; and has been found by day on flowers, especially in coastal sites, "but seldom to sugar" (Goater, 1979).

**Range:** Widely distributed, but usually not found in large numbers; usually commonest at coastal sites. It may be absent from parts of Ulster. Widespread but somewhat local in England, Wales and the Isle of Man, extending very locally though northern England to Co. Durham. Widespread in central western and southern Europe, extending to the south of Sweden and very locally to the south of Norway; absent from much of Eastern Europe, including the Balkan States, Slovakia and Romania.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Noctua janthe*

**Species name:** *Noctua janthe* (Borkhausen, 1792) (*Phalaena*). English Name: LESSER BROAD-BORDERED YELLOW UNDERWING.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *janthina* sensu auctt.

Subspecific status: None.

**Identification:** The terminalia are illustrated in Pierce (1909, 1942) (as *Triphaena janthina*).

**Macrohabitats:** *Quercus/Fraxinus/Corylus* forest, scattered trees (*Salix* spp.) & tall-herb forest clearings; urban parks.

**Adult microsites:** Not indicated, but "rests concealed by day" (Goater, 1979).



**Flight Period:** Illustrated by Goater (1979), Brooks (1991) (both as *Noctua janthina*), and by Skinner (1998). Late July to about the middle of September, rarely as late as early October. Goater gives late July and August for Britain.

**Oviposition site:** Not known.

**Larval microsites:** On trees, shrubs and herb layer plants.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Polyphagous, feeding externally on shrubs and herbaceous plants and trees. Goater (1979) states that in autumn it feeds on *Rumex* spp., *Primula* spp. and *Rubus fruticosus* agg. and, quoting Barrett (1897), on “*Arum*, *Atriplex*, *Matricaria* and *Stellaria*”, whereas in spring it feeds nocturnally on *Salix* spp., *Crataegus* spp., *Ulmus* spp. and *Corylus avellana*. Overwintering in the larval stage.

**Effectiveness of different sampling methods:** Found in large numbers at light-traps. It is also reported to be attracted to flowers, but less so to sugar (Goater, 1979).

**Range:** Generally distributed and common in many localities in Ireland. Widespread in Britain and commonest in the south, but extending northwards to Orkney and the Inner Hebrides. Widespread in western and central Europe, extending to about 60°N in Fennoscandia; absent from Portugal and Lithuania; but present on Corsica, Sardinia, Sicily and Malta. Not reported from the Balkans apart from Albania and former Yugoslavia.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Noctua pronuba*

**Species name:** *Noctua pronuba* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: LARGE YELLOW UNDERWING.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *innuba* (Treitschke, 1825).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Triphaena pronuba*).

**Macrohabitats:** Tall-herb and grassy forest clearings (gen.), dry calcareous and non-calcareous grassland, lightly grazed improved grassland, coastal grey dunes, dune-slacks, machair and vegetated sea-cliffs; field margins & urban parks; transition mire.

**Adult microsites:** “Roosts by day on the ground, in hay, dead leaves or brushwood” (Goater, 1979).

**Flight Period:** From about mid-June to mid-September, but occasionally found as early as May and late as October.

**Oviposition site:** On the undersides of leaves of the foodplant, or on grass inflorescences.

**Larval microsites:** On the foliage of herbs.

**Food and feeding habitats** (Goater, 1979); Emmet, 1991); (Skinner, 1998): The larva feeds mainly or entirely underground on a wide range of wild and cultivated herbs and grasses. From October, overwintering, and feeding throughout until April; pupating about May in a subterranean cocoon. According to Goater (1979) "it has more the habits of a cutworm than other members of its genus".

**Effectiveness of different sampling methods:** Comes in abundance to all types of light-trap; also found at sugar and on flowers.

**Range:** Generally distributed and abundant in many localities in Ireland. Occurs commonly throughout Britain and the Isle of Man, also occurring in the Outer Hebrides, Orkney and Shetland. Generally distributed over Europe, including Iceland; generally distributed in southern and central parts of Fennoscandia, but local north of about 66°N

**Status:** Resident.

**Conservation:** Although numbers coming to light-traps have declined over the last 30 years, this remains a widespread and abundant species.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Nola confusalis*

**Species name:** *Nola confusalis* Herrich-Schäffer, 1847 (*Roeselia*). English Name: LEAST BLACK ARCHES.

**Nomenclature:** Nolinae: Nolidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce & Beirne (1938) (as *Nola confusalis*).

**Macrohabitats:** Humid *Fagus*, *Quercus*/*Fraxinus*/*Corylus* and acidophilous *Quercus* forest, rich-soil scrub & scattered trees (*Quercus*); urban parks.

**Adult microsites:** "Rests by day head downwards on a tree trunk when it greatly resembles a bird-dropping" (Revell, 1979).

**Flight Period:** From about the end of April to mid-June. Revell gives May and June for Britain.

**Oviposition site:** Unknown.

**Larval microsites:** On foliage of trees.

**Food and feeding habitats:** (Revell, 1979); (Emmet, 1991); (Skinner, 1998). According to Revell (1979), the larva is found mainly on *Quercus* spp. but sometimes on *Fagus sylvatica*, *Prunus spinosa* and other trees, where it feeds mainly on lichens; however, Emmet (1991) and Skinner (1998) indicate *Tilia* spp. and *Quercus ilex*, *Fagus sylvatica* and *Prunus spinosa* as foodplants. Other authors (e.g. Brooks, 1991, Gustafsson, 2004, Salvella, 2004) do not list lichens as foodplants. Feeding in July and August, then pupating in a cocoon attached to bark or a paling post, and overwintering there. The distribution of Irish records suggests mixed deciduous woodland. The species has been noted several times in *Alnus glutinosa* thickets at Bull Island, Co. Dublin.

**Effectiveness of different sampling methods:** Attracted to light-traps, but the adult has sometimes been found on tree trunks by day.

**Range:** Fairly widespread in woodland in the south and east, especially southeast of a line from about Belfast to Galway, but there are few records from the midlands and parts of the north. Local in England and Wales, mainly in wooded areas of the south; scarce and local in Scotland, but extending north to about the Black Isle. Widespread in Europe, but scarce in the Balkans where it is recorded from only Bulgaria; extending northwards to central Sweden.

**Status:** Locally common and widespread resident.

**Conservation:** This species appears to be under no overall threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 30<sup>th</sup> November 2005.

### *Nonagria typhae*

**Species name:** *Nonagria typhae* (Thunberg, 1784) (*Noctua*). English Name: BULRUSH WAINSCOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *arundinis* (Fabricius, 1787).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Nonagria typhae (arundinis)/typhae*).

**Macrohabitats:** Humid/flooded eutrophic grassland; rich fen/fen-sedge beds; cutover bog; *Typha* reedbeds; marsh and tall-herb swamp.

**Adult microsites:** "Rests by day cryptically concealed among the dead lower leaves of reedmace" (Goater, 1983).

**Flight Period:** Early August to late September; Thompson & Nelson (2003) give mid-July to mid-October.

**Oviposition site:** Within the stems of emergent water plants.

**Larval microsites:** In stems of emergent water plants.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Feeding in the stems of *Typha* spp., mainly *T. latifolia*. At first it mines in the upper part of the stem, moving from stem to stem and finally forms a large tunnel in the lower part of the stem. Its presence is indicated by a failure to flower and the yellowing of the central leaves of the shoot. April to July, then pupating in the feeding place, head-downwards. The larva cuts out a "window" in the stem as far as the epidermis, through which the emerging imago escapes, leaving the pupal exuviae inside the stem. Overwintering as an ovum.

**Effectiveness of different sampling methods:** Adults are regularly taken at light. Larvae and pupae may be found by searching in stems of *Typha*.

**Range:** Widely distributed wherever *Typha* beds are established; it does, however, appear to be scarce in some areas such as Donegal. Widely distributed and locally abundant in reedbeds in England and Wales, becoming scarcer and very local in the south and east of Scotland, extending to Forres, Morayshire. Generally distributed over western and central Europe, also on some Mediterranean islands and in the Baltic States; but more local in the Balkans where it is recorded from only Romania, Bulgaria and Greece. In Fennoscandia it occurs only in the southeast of Norway, but in Finland and Sweden it extends to the northern coast of the Baltic.

**Status:** Resident.

**Conservation:** This species is vulnerable to destruction of beds of its foodplant associated with road construction, agricultural improvements, etc.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Nycteola revayana*

**Species name:** *Nycteola revayana* (Scopoli, 1722) (*Phalaena*). English Name: OAK NYCTEOLINE.

**Nomenclature:** Chloephorinae: Nolidae: Lepidoptera: Insecta. (This species is here included as a Noctuid in keeping with recent British classification).

**Synonymy:** *rewayana* misspelling; *ilicana* (Fabricius, 1781); *afzeliana* (Swederus, 1787); *lathamiana* (Swederus, 1787); *ramosana* (Hübner, 1793); *undulana* (Hübner, 1799); *bifasciana* (Donovan, 1801), nec (Hübner, 1787); *dilutana* sensu Haworth, 1811; *stoninus* (Curtis, 1840).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce & Beirne (1938) (as *Sarrothripus revayana* (*undulana*)).

**Macrohabitats:** *Quercus*/*Fraxinus*/*Corylus* & acidophilous *Quercus* forests; hardwood alluvial forests; scattered trees (*Quercus*); urban parks.

**Adult microsites:** The overwintering adult hides by day in holly, yew and coniferous trees (Skinner, 1998).

**Flight Period:** From late August, then hibernating and reappearing in the spring, as late as late May.

**Oviposition site:** Not indicated.

**Larval microsites:** On trees, on the foliage.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeds on the foliage of *Quercus* spp. in June and July, pupating in August in a cocoon below a leaf of the foodplant; overwintering as a hibernating adult, "often in ivy, yew or undergrowth" (Lorimer, 1983).

**Effectiveness of different sampling methods:** Although it does come to light-traps, Lorimer (1983) suggests that sugar is the most effective bait for the adult, while it also feeds on flowers and berries well into the autumn.

**Range:** Very locally distributed over Ireland, and found mainly in mature oakwoods, such as those of Killarney. It is unrecorded over wide areas of the country including most of the northwest, west and midlands, but it has recently been found in good numbers at Cronykeery, near Ashford, Co. Wicklow. In Britain this species is fairly common over much of southern England, becoming more scattered through the Midlands and Wales and only local in northern England and Scotland, extending to Ross-shire and the Isle of Skye. Generally distributed over Europe apart from European Turkey; extending north to about 61°N in Fennoscandia.

**Status:** Very local resident.

**Conservation:** The Irish status of this species seems to have undergone little change.

**Compiler:** K. G. M. Bond. Date of compilation: 15<sup>th</sup> February 2006.

### *Ochropleura plecta*

**Species name:** *Ochropleura plecta* (Linnaeus, 1761) (*Phalaena* (*Noctua*)). English Name: FLAME SHOULDER.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Senta/Ochropleura plecta*).

**Macrohabitats:** Unimproved dry grassland (calcareous and non-calcareous); fallow land & field margins.

**Adult microsites:** Not indicated.

**Flight Period:** Late May to early September, but occasionally as early as the beginning of May. In Britain it is reported to have two peaks of emergence, in May and early June, and the second half of August, but Irish records seem to indicate one prolonged period of emergence.

**Oviposition site:** Not known in the wild.

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeding externally at night, on a wide range of herbaceous plants including *Plantago* spp., *Rumex* spp., *Galium* spp. and *Senecio vulgaris* as well as on cultivated lettuce (*Lactuca sativa*) and beet (*Beta vulgaris*). June to July, and again in September and October, in each case pupating in a cocoon at, or slightly below the soil surface, where it also overwinters.

**Effectiveness of different sampling methods:** Comes regularly in numbers to light traps; also reported by Goater, 1979) to be attracted to sugar and ragwort flowers.

**Range:** Found commonly throughout Ireland in a wide range of habitats. Widespread and common in Britain, extending northwards to Orkney and the Outer Hebrides. Generally distributed over Europe, including most of the Mediterranean islands; extending to southern and central Fennoscandia to about 65°N.

**Status:** Common resident.

**Conservation:** This species does not appear to be under any threat.

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.

### *Oligia fasciuncula*

**Species name:** *Oligia fasciuncula* (Haworth, 1809) (*Noctua*). English Name: MIDDLE-BARRED MINOR.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Miana fasciuncula/Procus fasciuncula*). The male genitalia are also illustrated in Heath & Cooke (1969).

**Macrohabitats:** Grassy forest clearings; unimproved dry grassland (calcareous and non-calcareous); hay meadows; field margins.

**Adult microsites:** Usually rests concealed by day, but sometimes found on flowers; the female sits on grass-blades in still warm weather (Goater, 1983).

**Flight Period:** In Ireland from early June to late July.

**Oviposition site:** Not described.

**Larval microsites:** In and on leaves and stems of herb-layer plants and in tussocks of grasses.

**Food and feeding habitats** (Goater, 1983); (Koch, 1984); (Emmet, 1991); (Skinner, 1998): On a range of grasses, unspecified in the British literature consulted. Koch (1984), dealing with the German

fauna, gives *Deschampsia cespitosa*, *D. flexuosa* and *Glyceria maxima*. Overwintering in larval diapause; larval stage from August to the following May, then pupating in a cocoon in detritus.

**Effectiveness of different sampling methods:** Regularly taken at Actinic and Mercury-vapour light-traps, usually in small numbers; it has also been several taken times at Malaise Traps. Goater (1983) states that it is freely attracted to grass flowers in marshes after dusk, also to ragwort (*Senecio jacobaea*), several species of Umbelliferae, and to honey-dew and sugar.

**Range:** Widespread and fairly common over much of Ireland, but more common in the north, and evidently scarce in the south-west. In Britain it occurs fairly commonly throughout, extending to Shetland, and even to St Kilda, but is found mainly in damp areas. It is widespread in western Europe from Portugal to Denmark, but absent from much of eastern Europe, and mainly coastal in southern Fennoscandia.

**Status:** Widespread resident.

**Conservation:** This species seems to be relatively unthreatened in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 24<sup>th</sup> November 2004.

### *Oligia latruncula*

**Species name:** *Oligia latruncula* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: TAWNY MARBLED MINOR.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** The adult is illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998), but examination of the genitalia is usually considered necessary for identification. The male and female terminalia are illustrated in Pierce (1942), and also in Goater (1983). The male genitalia are also illustrated in Heath & Cooke (1969).

**Macrohabitats:** Grassy forest clearings; unimproved dry grassland (calcareous and non-calcareous); hay meadows; field margins.

**Adult microsites:** Unknown, but "usually rests concealed by day" (Goater, 1983).

**Flight Period:** In Ireland from early June to the beginning of August. Skinner (1998) gives late May to early July in Britain.

**Oviposition site:** Not stated, but probably laid on the blades and stems of grasses.

**Larval microsites:** In herb layer plants; within the stems.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): On *Dactylis glomerata*, *Agropyron repens*, and probably other grasses. Entering at a leaf axil and working downwards to base, moving from stem to stem at night. August to April, overwintering as a small larva, pupating in May within a chamber in a grass-stem in which the larva has fed.

**Effectiveness of different sampling methods:** Regularly taken at light-traps of all kinds, also recorded several times at Malaise Traps. Goater (1983) adds that it comes freely to sugar and honey-dew at night.

**Range:** Records of this species, *O. strigilis* and *O. versicolor* are based on specimens that have been genitally examined or dissected (Bond, 2005). This species seems to be widespread and fairly common over much of the south and east of the country, and parts of the west. There are also a few records from the north, and further examination of museum specimens will probably reveal more. Widespread in Britain and common in many areas, extending north to near Inverness. Widespread in Europe and recorded from all countries except Turkey; extending to central Fennoscandia.

**Status:** Resident.

**Conservation:** As this species is widespread in a range of habitats, it is not considered at risk in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 9<sup>th</sup> January 2006.

### *Oligia strigilis*

**Species name:** *Oligia strigilis* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: MARBLED MINOR.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *praeduncula* (Denis & Schiffermüller, 1775); *?aethiops* (Haworth, 1809).

Subspecific status: None.

**Identification:** The adult is illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998), but examination of the genitalia is usually considered necessary for identification. The terminalia are illustrated in Pierce (1909, 1942) (as *Miana/Procus strigilis*); and also in Goater (1983). The male genitalia are also illustrated in Heath & Cooke (1969).

**Macrohabitats:** Unimproved dry calcareous grassland.

(In Britain it is found over a wide range of habitat, including non-calcareous grassland, grassy forest clearings, field margins and vegetated sea-cliffs).

**Adult microsites:** Usually concealed amongst vegetation, but can occasionally be found at rest low on a tree-trunk or fence-post, or concealed under a piece of loose bark (Goater, 1983).

**Flight Period:** The only record on the *Irish Noctuidae Database* is 21 June 1992. For Britain, Skinner (1998) gives late May to early July.

**Oviposition site:** Ova are "laid in massed rows, more or less adhering together, on the blades and stems of grasses" (Goater, 1983) quoting Stokoe & Stovin (1958).

**Larval microsites:** In herb layer plants; within the stems.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): On *Dactylis glomerata*, *Agropyron repens*, and probably other grasses. The larva enters at a leaf axil and works downwards



to the base, moving from stem to stem at night. August to April, overwintering as a small larva, pupating in May within a chamber in a grass-stem in which the larva has fed.

**Effectiveness of different sampling methods:** Has been taken at Mercury-vapour light-trap; and, according to Goater (1983) comes freely to sugar and honey-dew.

**Range** (Bond, 2005): This species has been found in the Burren, Co. Clare, and at Kilcolman, Co. Cork, where a male was taken on 21 June 1992. During their Burren survey, Bradley & Pelham-Clinton (1967) recorded "several" from Clooncoose and Rinnamona Lough, stating that it was of "a very pale form, superficially distinct in this area from the darker *O. latruncula*". Although Goater (1983) shows scattered records for other parts of Ireland, no further confirmed Irish records have been found, and it is presumed that the records were based on specimens that were not dissected. Baynes (1964) also implies that of the reported specimens only those from the Burren had been adequately checked. Although some records may be uncertain due to confusion with other *Oligia* spp., it appears to be widespread and common in many parts of Britain including the Isle of Man, where it occurs on sea-cliffs. Throughout Europe to southern and central Fennoscandia, not recorded from Turkey.

**Status:** Scarce resident.

**Conservation:** As so little is known about this species in Ireland, it is difficult to assess any threats, but it presumably depends on areas of calcareous grassland, some of which are probably under threat.

**Compiler:** K.G.M. Bond. Date of compilation: 9<sup>th</sup> January 2006.

### *Oligia versicolor*

**Species name:** *Oligia versicolor* (Borkhausen, 1792) (*Phaelana* (*Noctua*)). English Name: RUFIOUS MINOR.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *versicola* misspelling.

Subspecific status: None.

**Identification:** The adult is illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998), but examination of the genitalia is usually considered necessary for identification. The male and female terminalia are illustrated in Pierce (1942) (as *Procus versicola*); and are also illustrated in Goater (1983). The male genitalia are also illustrated in Heath & Cooke (1969).

**Macrohabitats:** Grassy forest clearings; field margins.

**Adult microsites:** Unknown.

**Flight Period:** In Ireland from mid-June to the end of July. For Britain, Skinner (1998) gives mid-June to mid-July, but six of the nine records on the *Irish Noctuidae Database* are from the second half of July.

**Oviposition site:** Unknown, but probably as for other *Oligia* spp.

**Larval microsites:** Unknown, but probably as for other *Oligia* spp., i.e. in stems of herb layer plants.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Unknown in the wild, but believed to be similar to those of *O. strigilis*, viz. on *Dactylis glomerata*, *Agropyron repens*, and probably other grasses. Entering at a leaf axil and working downwards to base, moving from stem to stem at night. August to April, overwintering as a small larva, pupating in May within a chamber in a grass-stem in which the larva has fed.

**Effectiveness of different sampling methods:** This moth has been taken at Mercury-vapour light-trap. Goater (1983) states that "its [the adult's] habits resemble those of the other [*Oligia*] species".

**Range** (Bond, 2005): First reported from Ireland by Cockayne (1952), this species is now known from several localities in the south and east of Ireland, and a specimen labelled "Lough Gill" (Co. Sligo) has also recently been discovered in a museum collection. It has also been recorded from Corofin, Co. Clare. It has not been possible to trace the specimens reported as taken by Greer at Lissan, Co. Tyrone (see Baynes, 1964). This species appears to be widespread over most of England and Wales, and also in the lowlands of Scotland, extending as far as Argyll. This appears to be the most restricted of the three sibling species in Europe. It is, however, widespread, extending from the extreme south of Sweden to Spain and Bulgaria, but there are no records from Portugal, Latvia or Lithuania.

**Status:** Local resident.

**Conservation:** As so little is known of the true distribution and ecology of this species in Ireland, it is difficult to assess the threats.

**Compiler:** K.G.M. Bond. Date of compilation: 9<sup>th</sup> January 2006.

### *Omphaloscelis lunosa*

**Species name:** *Omphaloscelis lunosa* (Haworth, 1809) (*Noctua*). English Name: LUNAR UNDERWING.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *humilis* sensu Humphreys & Westwood, 1843.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Anchocelis/Omphaloscelis lunosa*).

**Macrohabitats:** Unimproved dry non-calcareous grassland.

**Adult microsites:** The moth usually hides by day, but can be seen resting on walls or fences or resting high up on grasses after dusk (Lorimer, 1983).

**Flight Period:** Mid-September to late October; the 26 records on the *Irish Noctuidae Database* range from Sept. 14<sup>th</sup> to 26 Oct. 26<sup>th</sup>. Thompson & Nelson (2003) state "late August to the beginning of October" while Lorimer (1983) states "emerges from late August to early October".

**Oviposition site:** On herbs (Gramineae), loosely attached, laid singly or in irregular rows.

**Larval microsites:** On herbs (Gramineae); on the foliage and more rarely the roots.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally from late October until the following May on the blades, stems and roots (Skinner, 1998) of various grasses, including *Poa annua* and *Holcus lanatus*; Pupating in a weak subterranean cocoon in June. Overwintering as a small larva.

**Effectiveness of different sampling methods:** Adults are found regularly in good numbers at light-traps; but according to Lorimer (1983), they are also attracted to a lesser extent to ivy-blossom, berries, fruit, and occasionally sugar.

**Range:** Common in many coastal localities, especially in the east and south, becoming progressively rarer inland and apparently absent from extensive areas including most of the northwest. Generally distributed in England and Wales, apart from Northern England where it is local and largely coastal. Local in Scotland, mainly in the southeast, but extending to Aberdeen in the east and Ross-shire in the wets, also in the Inner Hebrides. Common in the Isle of Man. In Europe this species is confined to the west and southwest, from Iberia to Italy, northwest France (Lorimer, 1983, but not in Karsholt & Razowski, 1996) and the Benelux countries; also extending very locally to Germany and Denmark.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat, but there are some indications of a recent decline in abundance.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Orthosia cerasi*

**Species name:** *Orthosia cerasi* (Fabricius, 1775) (*Noctua*). English Name: COMMON QUAKER.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *stabilis* (Denis & Schiffermüller, 1775); *junctus* (Haworth, 1803); *pallida* (Haworth, 1809); *rufannulata* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) (both as *Orthosia stabilis*), and by Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Taeniocampa/Orthosia stabilis*).

**Macrohabitats:** Mature and sapling *Quercus/Fraxinus/Corylus*, mature and sapling acidophilous *Quercus* forest; *Salix* swamp, alluvial softwood and hardwood forest; scattered *Quercus* and *Salix* trees; hedges & urban parks; fen carr.

**Adult microsites:** Not indicated.

**Flight Period:** From about mid-March to mid-May, but in mild weather the adults may appear as early as late February or even earlier.

**Oviposition site:** On the twigs of the foodplant, "in rather untidy masses" (Lorimer, 1979).

**Larval microsites:** On trees, on the foliage.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeds on a wide range of shrubs and deciduous trees, but mainly on *Quercus* and *Salix* spp., in May and June; initially in developing leaf-buds, later in spun terminal shoots, and later fully exposed. Pupating in July in a subterranean cocoon, in which it overwinters as a fully formed adult.

**Effectiveness of different sampling methods:** Frequently encountered at mercury-vapour light-trap; less so at actinic trap. According to Lorimer (1979) also strongly attracted to sallow bloom, and later to blackthorn blossom and sugar.

**Range:** Common and generally distributed over Ireland, often very common on margins of woodland. Widespread and common in many localities in England, Wales, the Isle of Man and southern Scotland, more local further north, but extending to the Inner Hebrides and the north of the mainland. Recorded from all European mainland countries, except Albania, also from Corsica, Sardinia and Sicily; extending to Trondheim (63°N) in Norway, and to about 61°N in Sweden and Finland.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.

### *Orthosia cruda*

**Species name:** *Orthosia cruda* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: SMALL QUAKER.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *pulverulenta* (Esper, 1786); *ambigua* sensu Hübner, 1803; *nanus* (Haworth, 1803); *pusilla* sensu Stephens, 1829.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Taeniocampa/Orthosia cruda (pulverulenta)*).

**Macrohabitats:** *Quercus/Fraxinus/Corylus* forests (gen.); acidophilous *Quercus* forest (gen.); alluvial hardwood forest; scattered *Quercus* & *Salix* trees; hedges & urban parks.

**Adult microsites:** Not indicated.

**Flight Period:** Late March to about the middle of May, but according to Lorimer (1979), adults may appear as early as December in mild weather.

**Oviposition site:** Not known in the wild; the shape of the ovipositor suggests that they are inserted into crevices (Lorimer, 1979) on the foodplant.

**Larval microsites:** On trees, on the foliage of deciduous species.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeding in May and June on the foliage of mainly *Quercus* spp. and *Salix* spp. ("rough-leaved willow") (Lorimer, 1979), but also on *Corylus avellana*, *Crataegus* and *Rosa* spp, and other tree species; pupating in July and overwintering in an earthen cocoon below ground.

**Effectiveness of different sampling methods:** Comes to light-traps, also to sallow-blossom, and if this is not available, to sugar (Lorimer, 1979).

**Range:** Found locally over much of Ireland where mature oak (*Quercus* spp.) is established. Widespread and often common in and near deciduous woodland in Britain, but becoming more local northwards, extending to the Dornoch Firth in the east of Scotland, and the Inner Hebrides (Mull and Rhum) in the west. Recorded from all European mainland countries, apart from Albania, also from Corsica, Sardinia and Sicily; extending to the south of Norway and Finland, and to about 62°N in Sweden.

**Status:** Resident, locally common.

**Conservation:** The Irish status of this species appears to be stable.

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.

### *Orthosia gothica*

**Species name:** *Orthosia gothica* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: HEBREW CHARACTER.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *sigma* sensu Donovan, 1813; *gothicina* (Herrich-Schäffer, 1849).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Taeniocampa/Orthosia gothica*).

**Macrohabitats:** *Quercus/Fraxinus/Corylus*, acidophilous *Quercus* & *Betula* forest; rich-soil scrub; *Salix* swamp; alluvial softwood & hardwood forest; scattered *Quercus*, *Salix* and *Betula* trees; tall-herb forest clearings; coastal dune scrub & dune slacks; field margins, hedges & urban parks; fen carr & transition mire; cutover bog.

**Adult microsites:** Not indicated.

**Flight Period:** Early March to about mid-May, occasionally as late as the beginning of June. According to Lorimer (1979), adults may emerge in mild weather in winter.

**Oviposition site:** “. . . in untidy masses on almost any vegetation, withered or living” (Lorimer, 1979).

**Larval microsites:** On trees and shrubs, sometimes on herb-layer plants; on the foliage.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Polyphagous, but mainly on deciduous trees and shrubs; also on *Rumex* spp., *Trifolium* spp, *Urtica dioica* and *Filipendula ulmariae* (“on northern moors”, Lorimer (1979)), in May and June. Pupating in a subterranean cocoon in July and overwintering as a pupa.

**Effectiveness of different sampling methods:** The adults are frequently found at light-traps.

**Range:** Very common and generally distributed over Ireland. Common and generally distributed over Britain, extending to Shetland, and it has even been recorded from St Kilda. Recorded from all European mainland countries, also from Corsica, Sardinia and Sicily; extending to the far north of Fennoscandia.

**Status:** Resident.

**Conservation:** This species remains abundant over Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.

### *Orthosia gracilis*

**Species name:** *Orthosia gracilis* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: POWDERED CHARACTER.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *sparsus* (Haworth, 1803); *pallida* sensu Stephens, 1829; *rufescens* (Tutt, 1902).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Taeniocampa/Orthosia gracilis*).

**Macrohabitats:** Scattered trees (*Salix*); humid/flooded oligotrophic grassland (gen. & *Molinia*); wet heath; acid fen, fen carr & transition mire; cutover bog.

**Adult microsites:** Not indicated.

**Flight Period:** From about mid-April to mid-May.

**Oviposition site:** On twigs or withered vegetation of the foodplant.

**Larval microsites:** On trees, shrubs and low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally in June and July, initially in the spun terminal shoots of the foodplants which include *Salix* spp., *Myrica gale*, *Filipendula ulmariae*, *Lysimachia vulgaris* and *Lythrum salicaria*. After growing larger it descends by day to hide, but then can still be seen feeding well after dawn. Irish colonies are

strongly associated with *Myrica gale*. Pupating in August and overwintering as a pupa in a subterranean cocoon.

**Effectiveness of different sampling methods:** The adult has been taken at both actinic and mercury-vapour light-traps, but Lorimer (1979) reports that it also comes to blossoms and sugar,

**Range:** Widely distributed, but most common in the boggy areas of the western half of Ireland, where *Myrica gale* is well established. It appears to be only very locally common in the east and southeast. In Britain it is widely distributed and locally distributed over England and Wales. In Scotland, as in Ireland, it is associated strongly with *Myrica gale* and is found locally in habitats with this species, mainly in the Highlands and west, extending to the Inner Hebrides and Orkney. Generally distributed over central Europe, Italy and Iberia, extending to southern Fennoscandia, and locally to central Sweden and to about 64°N in Finland; also on Corsica, Sardinia and Sicily, but absent from the southern Balkans.

**Status:** Resident.

**Conservation:** This species is vulnerable to loss of habitat in the eastern half of Ireland; elsewhere the status seems to be more or less stable.

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.

### *Orthosia incerta*

**Species name:** *Orthosia incerta* (Hufnagel, 1766) (*Phalaena*). English Name: CLOUDED DRAB.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *instabilis* (Denis & Schiffermüller, 1775); *nebulosus* (Haworth, 1803); *subsetaceus* (Haworth, 1803); *subcetaceus* misspelling; *fuscatus* (Haworth, 1803); *angustus* (Haworth, 1803); *caerulescens* (Tutt, 1902).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Taeniocampa instabilis (incerta)/Orthosia incerta (instabilis)*).

**Macrohabitats:** *Quercus/Fraxinus/Corylus* and acidophilous *Quercus* forest; *Betula* forest (gen.); *Betula/Pinus* & *Salix* swamp; alluvial softwood & hardwood forest; scattered *Quercus*, *Salix* & *Betula* trees; hedges & urban parks; fen carr.

**Adult microsites:** Not indicated.

**Flight Period:** From about the middle of March to late May.

**Oviposition site:** On the foodplant "in irregular masses" (Lorimer, 1979).

**Larval microsites:** On trees and shrubs, on the foliage.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeds in May and June, initially in developing leaf-buds, later in spun terminal shoots, and later fully exposed on the foliage of deciduous trees and shrubs, especially *Quercus* and *Salix* spp (“rough-leaved willow”) (Lorimer, 1979); some continental authors also include *Betula* as a foodplant (Mazzei *et al.*, 2005; Salvela, 2004). Pupates in July and overwinters as a fully developed adult within a fragile cocoon in a subterranean pupa.

**Effectiveness of different sampling methods:** Commonly encountered at mercury-vapour light-traps, and in much smaller numbers at actinic traps. According to Lorimer (1979) also attracted to sallow bloom or birch sap, less so to sugar.

**Range:** Widely distributed over Ireland, and locally common in wooded areas; but scarce or absent in some areas such as west Tyrone and North Derry (Thompson & Nelson (2003). Widespread and generally common over Britain, extending to the south of the Outer Hebrides and the north coast of Scotland. Generally distributed over mainland Europe, apart from Albania; also found on Sardinia, Sicily and Crete; extending northwards to central Fennoscandia.

**Status:** Resident.

**Conservation:** This species is in general not under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.

### *Orthosia miniosa*

**Species name:** *Orthosia miniosa* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: BLOSSOM UNDERWING.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** The terminalia are illustrated in Pierce (1909, 1942) (as *Taeniocampa/Orthosia miniosa*).

**Macrohabitats:** Mature and sapling trees in *Quercus/Fraxinus/Corylus* and acidophilous *Quercus* woodland & scattered trees (*Quercus*); hedges & urban parks.

**Adult microsites:** Not indicated.

**Flight Period:** March and April.

**Oviposition site:** On trees; on the twigs, usually near a leaf-bud, in small batches of about 15 (Lorimer, 1979).

**Larval microsites:** On trees; initially on the foliage, later sometimes on galls, or on the foliage of low-growing plants of the herb layer.



**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeding in May and June, initially gregariously in a web on the young foliage of *Quercus* spp., later singly, either on the foliage of *Quercus* spp., or on the galls of *Neuroterus quercusbaccarum* (Linnaeus) or *Biorhiza pallida* (Olivier), or in some cases descending to the ground to become polyphagous on low plants (Lorimer, 1979). Pupating in July; overwintering as a pupa in a subterranean cocoon.

**Effectiveness of different sampling methods:** According to Lorimer (1979) the adult is most easily found at willow blossom, and only infrequently at sugar and light.

**Range:** Scarce and local, confined to the southeast; its main centre of distribution is around the oakwoods of east Wicklow; there are also old records from Howth, Co. Dublin, Athy, Co. Kildare and Clonmel, Co. Tipperary (or Waterford). In Britain this is a local woodland species, found mainly in the south and west of England and Wales, extending very locally to eastern England and the south of Cumbria. Recorded from all European mainland countries except Albania, also from Corsica, Sardinia and Sicily; extending locally to 60°N in Fennoscandia.

**Status:** Very local resident.

**Conservation:** This local and specialised species is dependent on the conservation of its woodland habitats.

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.

### *Orthosia munda*

**Species name:** *Orthosia munda* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: TWIN-SPORRED QUAKER.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *geminatus* (Haworth, 1803); *bimaculatus* (Haworth, 1803).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Taeniocampa/Orthosia munda*).

**Macrohabitats:** *Quercus/Fraxinus/Corylus* & acidophilous *Quercus* forest; rich-soil scrub; *Salix* swamp; alluvial softwood & hardwood forest; isolated *Quercus*, *Populus* & *Salix* trees hedges, urban parks & ornamental gardens; fen carr.

**Adult microsites:** Not indicated.

**Flight Period:** Mid-March to late April.

**Oviposition site:** On the foodplant "in irregular masses" (Lorimer, 1979).

**Larval microsites:** On trees, shrubs and upward-climbing lianas; on the foliage.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeds in May and June on the foliage of a wide variety of plants, mainly on deciduous trees such as *Salix*, *Ulmus* and

*Quercus* spp., *Prunus spinosa* and *Populus tremula*; also on *Humulus lupulus* and *Lonicera periclymenum*. On trees it shows a preference for young, tender foliage. According to Lorimer (1979) it has the reputation of being a cannibal. Pupating in July and overwintering in a subterranean cocoon.

**Effectiveness of different sampling methods:** The adult has been taken at both actinic and mercury-vapour light-traps. Lorimer (1979) states that it feeds at willow bloom and come to sugar fairly freely.

**Range:** Widely distributed over Ireland, but rather local; mainly in wooded areas, but recent records from previously unworked areas suggest that it has been overlooked because of its early flight season. Thompson & Nelson (2003) report that it is absent from northern parts of Northern Ireland. Widely distributed and often common over most of central and southern England and Wales, becoming more local in Northern England, and rare in Scotland where it is known from only a few sites in the south and west, as well as the Inner Hebrides. Generally distributed over western and central Europe, but in the Balkans extending to only former Yugoslavia and Bulgaria, and absent from the Mediterranean islands; extending to only the extreme south of Sweden and Finland.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.

### *Orthosia opima*

**Species name:** *Orthosia opima* (Hübner, 1809) (*Noctua*). English Name: NORTHERN DRAB.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *advena* sensu auctt.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Taeniocampa/Orthosia opima*).

**Macrohabitats:** Scattered trees (*Salix*).

**Adult microsites:** Not indicated.

**Flight Period:** The only dated Irish records found are mid- to late April. For Britain, Skinner (1998) gives mid-April to mid-May.

**Oviposition site:** On trees, shrubs and herbs, on the foliage; often on dead herbage or withered grasses (Lorimer, 1979).

**Larval microsites:** On trees, shrubs and herbs; on the foliage.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally in late May and June on a wide range of trees, shrubs and herbs, including *Betula* and *Salix* spp., *Senecio jacobaea*, *Cynoglossum officinale* and *Ammophila arenaria*. Pupating in July in a subterranean earthen cocoon in which it overwinters.

**Effectiveness of different sampling methods:** Comes to light; the adult also feeds at willow bloom, blackthorn blossom and light (Lorimer, 1979).

**Range:** Scarce; there are very few recent records, and these are mostly from the south Dublin-Wicklow area. Bradley & Pelham-Clinton (1967) recorded "a few" from the Burren, Co. Clare. Formerly recorded from widely scattered sites in the north, southwest, west and midlands. Local in a range of habitats, including sand-dunes, chalk downland and acid heathland over England and Wales, becoming scarce northwards, extending in Scotland to the Inner Hebrides (Mull and Skye) and the central Highlands. Generally distributed over central and northern Europe, extending to the extreme south of Norway, but locally to about 64° in Sweden and Finland; absent from Iberia, the southern Balkans and the Mediterranean islands.

**Status:** Resident; scarce, probably declining.

**Conservation:** Due to paucity of records and knowledge of the larval habits in Ireland it is difficult to assess whether the species is under threat.

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.

### *Orthosia populeti*

**Species name:** *Orthosia populeti* (Fabricius, 1781) (*Bombyx*). English Name: LEAD-COLOURED DRAB.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *populi* (Ström, 1783), nec (Linnaeus, 1758); *subplumbeus* (Haworth, 1803).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Taeniocampa/Orthosia populeti*).

**Macrohabitats:** Isolated trees (*Populus*).

**Adult microsites:** Not indicated.

**Flight Period:** In Britain: March-April (Emmet, 1991); or "from early April" (Lorimer, 1979).

**Oviposition site:** On the twigs of trees, in small batches (Lorimer, 1979)

**Larval microsites:** On trees, initially in the catkins, later between spun leaves.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Feeding in May and June, initially inside catkins of *Populus tremula*, or occasionally other *Populus* spp., later high up between two spun leaves, feeding nocturnally. Pupating in July and overwintering in a subterranean earthen cocoon.

**Effectiveness of different sampling methods:** "Comes to sallow bloom and light, but rarely to sugar" (Lorimer, 1979).

**Range:** The only known Irish record of this species is reported by Chalmers-Hunt (1982) who reported his discovery of a specimen labelled "Westmeath L. M." in the Levinge collection in the National Museum of Ireland. Levinge collected in Co. Westmeath early in the 20<sup>th</sup> century. Local in southern, central and eastern England, very local in Wales and Northern England to Cumbria. In Scotland it is recorded from the central Highland northwards to Easter Ross. Generally distributed over central and northern Europe; extending to southern and central Norway, and locally to about 65°N near the Baltic in Sweden and Finland; also recorded from mainland Italy and Sicily; but absent from Iberia and the southern Balkans.

**Status:** Very rare resident, possibly extinct.

**Conservation:** Any population of this species rediscovered should be protected along with its foodplant, aspen (*Populus tremula*).

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.

### *Panemeria tenebrata*

**Species name:** *Panemeria tenebrata* (Scopoli, 1763) (*Phalaena*). English Name: SMALL YELLOW UNDERWING.

**Nomenclature:** Stiriinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *arbuti* (Fabricius, 1775); *heliaca* (Fabricius, 1775).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Heliaca arbuti (tenebrata)/Panemeria tenebrata (arbuti)*).

**Macrohabitats:** Fallow land & field margins.

**Adult microsites:** Not indicated, but by day it may sometimes be seen basking on flowers or leaves of bushes (Goater, 1983).

**Flight Period:** Insufficient data for Ireland; for Britain Goater (1983) gives May and early June.

**Oviposition site:** On flowers of low herbs.

**Larval microsites:** On and in fruiting bodies of low herbs.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); Skinner, 1998): On *Cerastium arvense* and *C. fontanum*, possibly also on other *Cerastium* spp. and on *Stellaria* spp., feeding on the flowers and seed-capsules in June and July, pupating in August in a cocoon in the soil and overwintering there.

**Effectiveness of different sampling methods:** This day-flier may be netted on the wing or from flowers in sunny weather.

**Range:** Kane (1901) lists records of this species from Markree castle, Co. Sligo, and Killarney and Sneem, Co. Kerry. There appear to be no more recent records, apart from one represented by a 10km dot in the Castlegregory area, Co. Kerry in Goater (1983). The source of this record has not been traced. The species is widely distributed but local over England and Wales to the Scottish Border, but there is evidence of a significant decline in at the northern edge of its range in southeast Scotland and northernmost counties of England, and also in eastern England. Generally distributed in central and southern Europe, apart from Portugal and the Mediterranean islands other than Sicily; extending north to Denmark, the Baltic States and southeast Finland, but in Sweden only recorded in the 19<sup>th</sup> century from Blekinge in the extreme southeast.

**Status:** Very local resident, possibly extinct.

**Conservation:** The Irish status of this species needs to be investigated by targeted surveys. Loss of unimproved grassland may have already caused its extinction.

**Compiler:** K. G. M. Bond. Date of compilation: 6<sup>th</sup> February 2006.

### *Panolis flammea*

**Species name:** *Panolis flammea* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: PINE BEAUTY.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *griseovariegata* (Goeze, 1781); *piniperda* (Panzer, 1786); *spretta* (Fabricius, 1787).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Trachea piniperda/Panolis flammea (piniperda)*).

**Macrohabitats:** *Betula/Pinus* swamp; conifer plantations (*Pinus sylvestris*); urban parks.

**Adult microsites:** Rests by day on the trunks or branches of pines (Goater, 1979).

**Flight Period:** From about mid-March to mid-May.

**Oviposition site:** On trees; ova are laid in rows beneath, or at the base of the foliage (needles) of the foodplant.

**Larval microsites:** On trees, on the foliage of the foodplant, cryptically marked.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeds on the needles of *Pinus sylvestris*, *P. pinaster* and *P. contorta* and possibly other *Pinus* spp. in June and July; pupating in August and overwintering as a pupa either in surface litter or in a crack in the bark.

**Effectiveness of different sampling methods:** The adult comes to light-traps and, according to Goater (1979) at night it also feeds at willow bloom, or more rarely, sugar.

**Range:** Widely scattered over the entire country in conifer plantations, and also found where isolated *Pinus* spp. occur. Its early flight period probably means that it was somewhat overlooked in the past. Common over Britain wherever pines are established, and has reached pest proportions in north Sutherland; also recorded from the Isle of Man and the Inner Hebrides. Generally distributed in pine forests over western Europe from Spain to about 64°N in southern and central Fennoscandia; also on Sardinia and Sicily, but not recorded from Albania or European Turkey.

**Status:** Probably an introduced species, now well established and spreading.

**Conservation:** This species is not in need of conservation in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.

### *Papestra biren*

**Species name:** *Papestra biren* (Goeze, 1781) (*Phalaena* (*Noctua*)). English Name: GLAUCCOUS SHEARS.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *glauca* (Hübner, 1809); *bombycina* sensu auctt.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Dianthoecia glauca/Hecatera bombycina (glauca)*).

**Macrohabitats:** Humid/flooded oligotrophic and *Molinia* grassland; wet heath & dry siliceous heath; acid fen; blanket bog.

**Adult microsites:** By day it can often be found on rocks, tree-trunks and fence-posts.

**Flight Period:** In Northern Ireland recorded as May (Thompson & Nelson (2003)); in Britain in May and early June.

**Oviposition site:** On the foodplant, in large batches.

**Larval microsites:** On low-growing plants of the herb layer, on low shrubs.

**Food and feeding habitats:** (Lorimer, 1979) polyphagous, feeding externally in July and August on a wide range of forbs and shrubs, including *Filipendula ulmariae*, *Myrica gale*, *Tussilago farfara*, *Polygonum aviculare*, *Sonchus oleraceus*, *Salix aurita*, *S. repens*, *Vaccinium*, *Calluna*, *Erica* and *Arctostaphylos* spp. Pupating in a cocoon in litter in September and overwintering as a pupa.

**Effectiveness of different sampling methods:** The adult feeds by day and night on flowers of its foodplants, but is not strongly attracted to sugar or light (Lorimer, 1979).

**Range:** Local and scarce, but relatively common in west Fermanagh and parts of Donegal; also recorded from south Kerry and adjacent parts of co. Cork. There are a few records from the Burren and Co. Galway. Otherwise known from only very scattered sites in the south, east and north, and few of these records are recent. This species has a western and northern distribution in Britain, on

acid moorland from Cornwall northwards to the Inner Hebrides and Orkney. Also found on the Isle of Man. Widely distributed over Europe, common in Fennoscandia almost to North Cape; not recorded from only Luxemburg, Portugal, Hungary, the south of the Balkans and the Mediterranean islands.

**Status:** Local resident.

**Conservation:** This species appears to be in decline, except perhaps in the northwest, and is vulnerable to loss of its boggy and wetland habitats.

**Compiler:** K. G. M. Bond. Date of compilation: 15<sup>th</sup> February 2006.

### *Paradiarsia glareosa*

Species name: *Paradiarsia glareosa* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: AUTUMNAL RUSTIC.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *hebraeica* (Hübner, 1819).

Subspecific status: None, but specimens with the forewing strongly suffused with pink, which are most common in western parts of Ireland and southwest Britain are referable to ab. *rosea* Tutt.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Senta/Amathes glareosa*).

**Macrohabitats:** Dry siliceous heath; vegetated sea-cliffs.

**Adult microsites:** Not indicated, but "rests concealed and seldom seen by day" (Goater, 1979).

**Flight Period:** Late August to late September or early October. Goater (1979) gives mid-August to mid-September for Britain.

**Oviposition site:** Not indicated.

**Larval microsites:** On low shrubs, low-growing herb-layer plants and tussocks of grasses.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Polyphagous on a wide range of forbs; Lorimer (1979) specifically mentions *Endymion non-scriptus*, *Calluna vulgaris*, *Erica cinerea*, as well as *Rumex*, *Plantago*, *Galium*, *Crepis* and *Salix* spp.; also found on the grass *Festuca ovina*. Feeding externally at night in autumn and again in the spring, passing winter in diapause; pupating in May in a subterranean cocoon.

**Effectiveness of different sampling methods:** Comes to light-traps and flowers, "but rarely to sugar" (Goater, 1979).

**Range:** Locally distributed over much of the country, probably most common in heathery districts, but nearly always found in only small numbers. Widely distributed in Britain, but commonest in the north where it extends to the Outer Hebrides and the Northern Isles, while it is local and largely confined to heathery districts in the south and east of England. Generally distributed over

western Europe from Iberia to the coasts of southwest Norway, extending east to southern Sweden, Estonia, Poland, Slovakia and Austria, also recorded from Italy and Switzerland.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Paradrina clavipalpis*

**Species name:** *Paradrina clavipalpis* (Scopoli, 1763) (*Phalaena*). English Name: PALE MOTTLED WILLOW.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *quadripunctata* (Fabricius, 1775); *cubicularis* (Denis & Schiffermüller, 1775).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Caradrina cubicularis (quadripunctata)/Athetis clavipalpis (quadripuncta) (cubicularis)*).

**Macrohabitats:** Hay meadows; crops (gen.), fallow land and field margins.

**Adult microsites:** The adult rests concealed by day amongst vegetation, but also often in thatch or ricks (Goater, 1983).

**Flight Period:** Mid-July to late October, occasionally as late as mid-November on the south coast; in some years also appearing in mid-June.

**Oviposition site:** Not stated

**Larval microsites:** On tall herbs; in fruiting bodies on herb-layer plants; on dried/stored plant material.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); Skinner, 1998): Feeding on Gramineae, especially on cereals, from August or September to late spring of the following year, when it pupates in a cocoon. It is particularly associated with grain of cereal crops stored in ricks, in which it forms a small dwelling chamber. Goater (1983) also mentions seed of *Plantago* spp. and peas as occasional foodplants. There is a possibility that the larva sometimes completes development in autumn, producing adults the following spring, but the usual overwintering stage is larval.

**Effectiveness of different sampling methods:** The adult is regularly found at light-traps; it is also reported to be attracted nocturnally to sugar and flowers (Goater, 1983).

**Range:** Widely distributed over Ireland, but absent from many areas. In Ulster it seems to be rare outside Co. Armagh and Down, and there are no records from some well-worked parts of western Ireland. There may have been a decline, as earlier writers (Kane, 1901; Donovan, 1936; Baynes, 1964) described it as very common and generally distributed. Generally distributed over Britain



and the Isle of Man, and common in many areas, extending to Shetland and the Outer Hebrides. Generally distributed over the whole of Europe, apart from the far north and northeast of Fennoscandia; also recorded from Iceland.

**Status:** Resident, declining.

**Conservation:** Although there are strong indications that this species has declined, it could not yet be described as a threatened species in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 15<sup>th</sup> February 2006.

### *Parastichtis ypsilon*

**Species name:** *Parastichtis ypsilon* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: DINGY SHEARS.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *fissipuncta* (Haworth, 1809); *upsilon* (Curtis, 1828).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Orthosia upsilon/ypsillon (fissipuncta)*).

**Macrohabitats:** *Salix* swamp; scattered *Salix* trees.

**Adult microsites:** Not known.

**Flight Period:** Late June and July" (Goater, 1983).

**Oviposition site:** Not stated, but presumably on the trunks or twigs of trees; "in dense batches" (Goater, 1983).

**Larval microsites:** On trees, on the foliage or fruiting bodies.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally on the foliage of *Salix* spp., but has also been obtained from the catkins of *Salix cinerea* and *Populus deltoides* x *P. nigra*, hiding by day under loose bark; April to early June; pupating in June in a cocoon either under loose bark or on the soil under trees. Overwintering as an ovum.

**Effectiveness of different sampling methods:** The adult comes readily to sugar and other bait, also to light.

**Range:** Apart from old and poorly documented records from Antrim and Wicklow, this specimen has been recorded in Ireland only from Glenageary, Co. Dublin, singly in 1960, 1963 and 1966 (Baynes, 1964, 1970). In England and Wales this species is locally common, while in Scotland it is only very locally scattered, but found as far north as the north coast. Generally distributed over Europe, including some of the Mediterranean islands; extending to the extreme south of Norway, up to central Sweden and throughout Finland.

**Status:** Very local resident (or possibly a migrant).

**Conservation:** As nothing is known of its early stages or habitat in Ireland it is impossible to assess the threats posed.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

*Phlogophora meticulosa*

**Species name:** *Phlogophora meticulosa* (Linnaeus, 1758) (*Noctua (Phalaena)*). English Name: ANGLE SHADES.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *pallida* (Tutt, 1892).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). Illustrated in Heath & Emmet (1983), Brooks (1991), Skinner (1998), and several other British publications. The terminalia are illustrated in Pierce (1909, 1942) (as *Phlogophora meticulosa*)

**Macrohabitats:** Tall-herb and grassy forest clearings; lightly grazed improved grassland; fallow land; field margins, urban parks and ornamental gardens.

**Adult microsites:** Often found by day at rest among grass or foliage, or on walls or fences.

**Flight Period:** Most records are from March to May, and again, more numerous from August to October, but records on *Irish Noctuidae Database* range from early February to early November. Some of the early spring records are probably from specimens that have emerged in greenhouses or conservatories. Skinner states that it is probably double-brooded in Britain, flying from May to October, but occasionally found in other months of the year.

**Oviposition site:** Ova laid singly or in small batches on foliage (Goater, 1983).

**Larval microsites:** On tall strong plants and low-growing plants of the herb layer; on shrubs.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Larvae feed externally on the foliage of a very wide range of forbs and shrubs that retain their leaves in winter, such as garden spinach, and more rarely on the foliage of trees. It is frequently found feeding on garden plants, also those in conservatories and greenhouses. The species is in general continuous-brooded but overwinters as a larva. Pupation takes place in a loose cocoon just below the soil surface.

**Effectiveness of different sampling methods:** Regularly recorded from both Mercury-vapour and Actinic light-traps, the moth is also frequently seen at rest during the day; it also comes to flowers and sugar. Recorded several times from Malaise Traps.

**Range:** This partially migratory Eurasiatic species occurs throughout Ireland, and common in the south, becoming less so northwards. It is also most common in the south of Britain, but extends northward to Shetland, and is probably only migratory from the Highlands northwards. It is found throughout Europe, extending to southern Fennoscandia, and Iceland, but perhaps surprisingly it appears to be unrecorded from European Turkey.

**Status:** Resident and partial migrant.

**Conservation:** There seem to be no obvious threats to this adaptable species in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

*Photedes captiuncula*

**Species name:** *Photedes captiuncula tincta* (Kane, 1895) [*captiuncula captiuncula* (Treitschke, 1825)] (*Apamea*). English Name: LEAST MINOR.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: Subspecies *tincta* (Kane, 1895) is the endemic Irish form. It is described as resembling the nominate subspecies, being strongly marked with clear cross-lines, but with the wing being suffused pinkish towards the termen, and with the median band deep pinkish brown (Goater, 1983). British specimens are referable to subsp. *expolita* (Stainton, 1855).

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Tapinostola captiuncula/Phothedes captiuncula*).

**Macrohabitats:** Unimproved dry calcareous grassland; limestone pavement.

**Adult microsites:** Not known, but the moth is diurnally active.

**Flight Period:** The three records on the *Irish Noctuidae Database* are from mid-June to mid-July. Skinner (1998) gives mid-June to early August in Britain.

**Oviposition site:** Not indicated.

**Larval microsites:** In tussocks of sedges.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998). Feeding on *Carex flacca*; the larva eats down into the heart of the plant, and moves to another when the central portion has been devoured. September to May, with winter diapause, resuming feeding in the spring; pupating in a cocoon in detritus in early June.

**Effectiveness of different sampling methods:** Can be caught by day, when it can be observed in flight. Goater (1983) adds that it is occasionally taken at light.

**Range:** Restricted to the limestone areas of the Burren, Clare, and adjacent areas of Co. Galway, extending northeastwards to Carnoneen, 15km north-east of Galway City, where it was discovered in 2003. Bradley & Pelham-Clinton (1967) described the species as being “widely distributed and locally common” within the Burren. In Britain it is also extremely local, being confined to northern England, where it occurs on limestone in south Cumbria and the Yorkshire Dales, also in northeast England, where it is mainly coastal and its range has declined. The nominate form occurs locally over mainland Europe, being montane in France, extending from Spain to southern Sweden and Finland, and present in most countries from Germany to Bulgaria.

**Status:** Very local resident.

**Conservation:** This very local species, which is represented here by an endemic Irish form, is restricted to grassy sites in areas of limestone pavement, and is vulnerable to any degradation of these habitats.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

*Photedes minima*

**Species name:** *Photedes minima* (Haworth, 1809) (*Noctua*). English Name: SMALL DOTTED BUFF.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *arcuosa* (Haworth, 1809); *lutescens* (Haworth, 1809).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Tapinostola arcuosa/Petilampa minima*). An illustration of the full-grown larva can be found at <http://www.skylark.ie/donegalmoths/species.asp>.

**Macrohabitats:** Grassy forest clearings; non-flooded eutrophic humid grassland; transition mire & cutover bog.

**Adult microsites:** Unknown, but "rests concealed by day" (Goater, 1983).

**Flight Period:** In Ireland from mid-July to late August. Emmet (1991) gives late June to early August, but describes the species as "continuous-brooded".

**Oviposition site:** Not described, but the ovum is probably attached to the haulms of the foodplant.

**Larval microsites:** In tussocks of grasses.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): The larva lives within, and sometimes on, the haulms of *Deschampsia cespitosa*. It hollows out the bases of the stems of the foodplant, and later pupates in a tight cocoon in the larval habitation, or, according to Haggett in Goater (1983) in the soil. Overwintering in the larval stage, which lasts from late August to early June of the following year.

**Effectiveness of different sampling methods:** Fairly frequently taken at light-trap, both Actinic and Mercury-vapour, in small numbers; also attracted to sugar (Goater, 1983). Once recorded from a Malaise trap.

**Range:** Widely scattered, but apparently local in Ireland. There are few recent records from the eastern half and the north-west. It is widespread wherever the foodplant occurs throughout Britain, as far north as Shetland. It is recorded from northern Spain northwards to southern Fennoscandia, but locally as far as the head of the Gulf of Bothnia in Sweden; further east it is recorded as far as Bulgaria and former Yugoslavia.

**Status:** Resident.

**Conservation:** This species seems to be under little threat at most of the known sites, but drainage or other agricultural improvements could endanger it locally.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Chortodes pygmina*

**Species name:** *Chortodes pygmina* (Haworth, 1809) (*Noctua*). English Name: SMALL WAINSCOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *fulva* (Hübner, 1813); *neurica* sensu Stephens, 1829; *pallida* (Stephens, 1829).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). Some forms might be confused with *Coenobia rufa*, but in *Chortodes pygmina* the costa of the forewing is straighter. The terminalia are illustrated in Pierce (1909, 1942) (as *Nonagria fulva/Arenostola pygmina*).

**Macrohabitats:** Grassy forest clearings/tracksides; non-flooded eutrophic humid grassland & oligotrophic humid grassland; fen sedge beds & transition mire; cutover bog & tall *Carex* sedge beds.

**Adult microsites:** "Rests concealed by day" (Goater, 1983).

**Flight Period:** From the end of July to the end of September, occasionally until early October.

**Oviposition site:** Ova are laid "in rows, somewhat irregularly, in the leaf-sheaths of the foodplant" (Goater, 1983).

**Larval microsites:** In stems of plants of the herb layer.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Feeding in the stems of various Cyperaceae, Gramineae or Juncaceae; Goater (1983) mentions *Carex acutiformis* in particular, but adds: "further study of the ecology of this species is needed". According to Emmet (1991) and Goater (1983) overwintering as a larva, with the larval stage lasting from October to July of the following year, but Skinner (1998) states that it overwinters as an ovum; the larva hatching in January or February. Pupating within the larval mine later in July.

**Effectiveness of different sampling methods:** Very frequently found at light-traps, often in numbers, and recorded several times from Malaise Traps. It has occasionally seen by day, but is normally concealed then.

**Range:** Widespread and common over most of Ireland, most common in the west and north, and more local in the east. Common in damper areas throughout Britain to the Shetlands. Found in all countries of the European mainland, apart from Turkey, and extending to southern Norway and Northern Sweden and Finland.

**Status:** A widespread and common resident.

**Conservation:** There seems to be little threat to this species at a national level, but smaller, more isolated colonies in eastern Ireland may be at risk from agricultural improvements.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

*Phytometra viridaria*

**Species name:** *Phytometra viridaria* (Clerck, 1759) ([*Phalaena*]). English Name: SMALL PURPLE-BARRED.

**Nomenclature:** Hypeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *aenea* (Denis & Schiffermüller, 1775); *aenea* (Hübner, 1788).

**Subspecific status:** None, but according to Lorimer (1983), the typical form is rare in Britain. This is described as being more brightly coloured than the usual British form, *aenea* Hübner, with rich olive-brown ground colour and a broader, brighter reddish purple postmedian fascia.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Phytometra aenea (viridaria)/viridaria (aenea)*).

**Macrohabitats:** Unimproved dry grassland (calcareous and non-calcareous); humid oligotrophic grassland; wet heath; limestone pavement.

**Adult microsites:** Mainly diurnally active, settling on bare earth between flights (Lorimer, 1983).

**Flight Period:** Probably from about mid-May to mid-August, but there is also the possibility that it occurs in two broods, peaking in May and August, as occurs in continental Europe, and as also suggested by Lorimer (1983). However, for Britain Lorimer, (*loc. cit.*), Emmet (1991) and Skinner (1998) indicate a single brood from May to July.

**Oviposition site:** Ova laid singly or in small batches on the stems and leaves of the foodplant (Lorimer, 1983).

**Larval microsites:** On low-growing plants of the herb layer; hibernating in herb-layer litter.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally on the leaves and flowers of *Polygala vulgaris* and *Pedicularis sylvatica* from June to September (Lorimer, 1983); from May to July (Emmet, 1991), or July to September (Skinner, 1998). Pupating in the autumn in a cocoon in detritus; overwintering as a pupa.

**Effectiveness of different sampling methods:** Although the adult occasionally comes to light-traps, it is more often seen flying in sunshine, in short rapid flights,

**Range:** Widely distributed in the west, and fairly common in parts of Kerry and in the Burren, Co. Clare (Bradley & Pelham-Clinton, 1967). Elsewhere it is very local, and absent from extensive areas. There are very few recent records from the east and midlands. Widespread over Britain, extending to Caithness and the Inner Hebrides, but very local in many areas. Reported from all European mainland countries except Turkey, also present on the Mediterranean islands apart from Crete; extending north to southern Scandinavia, and very locally to northern Sweden.

**Status:** Local resident.

**Conservation:** This species appears to be in decline, and is vulnerable to loss of unimproved grassland, in particular in the eastern half of the Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

*Plusia festucae*

**Species name:** *Plusia festucae* (Linnaeus, 1758) (*Phalaena (Noctua)*). English Name: GOLD SPOT.

**Nomenclature:** Plusiinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The separation of this species and *P. putnami gracilis* Lempke, 1966 by wing pattern is discussed and illustrated in Heath (1969). The terminalia are illustrated in Pierce (1909, 1942) (as *Plusia festucae*). Lempke (1966) illustrates the terminalia of both sexes of this species, while Heath (1969) illustrates only the male terminalia.

**Macrohabitats:** Humid/flooded eutrophic grassland (gen.); rich fen/acid fen; transition mire; reed/tall sedge beds (*Sparganium* & tall *Carex*); marsh & tall-herb swamp.

**Adult microsites:** "Occasionally seen at rest by day, resting head-upwards on the foliage of waterside plants, such as *Iris*" (Lorimer, 1983).

**Flight Period:** From about early June to the middle of September; probably in two generations, at least in the south as in southern England; there being relatively few Irish records around mid-July.

**Oviposition site:** The ova are laid in linear batches of about 20 on either side of a leaf of the foodplant (Lorimer, 1983).

**Larval microsites:** On tall herbs & low-growing plants of the herb layer; in tussocks of grasses, sedges and rushes; and overwintering on the ground within these.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Although there may be some confusion with the habits of the larva of *P. putnami*, those of *P. festucae* are believed to feed on *Carex* spp, *Iris pseudacorus* and *Alisma Plantago-aquatica*. Skinner (1998) includes *Sparganium* spp. Feeding in two generations, late June to early August, and September to the following May, the latter overwintering when small in diapause at the base of the foodplant and feeding again in spring. Pupating after spinning a cocoon in May and again in August.

**Effectiveness of different sampling methods:** Regularly taken at mercury-vapour and actinic light-traps; it is also attracted to night-scented flowers (Lorimer, 1983).

**Range:** Widely distributed and fairly common over most of Ireland from north to south, but commonest in damp areas. In Britain it is similarly widely distributed as far north as the Shetlands, but is scarce in the drier parts of eastern England; also the Isle of Man. Widely

distributed over Europe, reported from nearly countries, except Iceland and Turkey, extending to the northern extremity of the Baltic coast.

**Status:** Widespread and fairly common resident.

**Conservation:** This species appears to be under little threat generally, but loss of remaining wetlands in eastern Ireland could lead to local extinctions.

**Compiler:** K. G. M. Bond. Date of compilation: 24<sup>th</sup> November 2005.

### *Plusia putnami*

**Species name:** *Plusia putnami gracilis* Lempke, 1966 [*putnami putnami* Grote, 1873]. English Name: LEMPKE'S GOLD SPOT.

**Nomenclature:** Plusiinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: Subspecies *gracilis* Lempke, 1966 is the western European subspecies; the nominate subspecies being Holarctic. This is described as being duller in colour than subsp. *gracilis*, with joined or confluent median spots and smaller subapical pattern (Lempke quoted in Lorimer, 1983).

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The separation of this species and *P. festucae* by wing pattern is also discussed and illustrated in Heath (1969). Lempke (1966) illustrates the male and female terminalia of this species and *P. festucae* for comparison, while Heath (1969) illustrates only the male terminalia.

**Macrohabitats:** Rich fen/fen-sedge beds, fen carr & transition mire; reed/tall-sedge beds (*Schoenoplectus*, *Sparganium* and tall *Carex*).

**Adult microsites:** Not known.

**Flight Period:** The only Irish records are from mid-June and mid-July. For Britain Lorimer (1983) gives late June to mid-July, but Skinner (1998) indicates July and early August.

**Oviposition site:** Not indicated, but probably as in *P. festucae*, laid in linear batches on the leaf of the foodplant.

**Larval microsites:** On tall herbs & low-growing plants of the herb layer; in tussocks of grasses, sedges and rushes; and overwintering on the ground within these.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): For Britain Skinner (1998) lists only *Calamagrostis canescens* (purple small-red), a plant not recorded from Ireland or the Isle of Man, however, Emmet (1991) suggests *Calamagrostis* spp, *Holcus* spp and "prob. other Gramineae", while Gustafsson (2004) indicates "reeds, etc." October to the following June when it pupates in a cocoon, probably overwintering as a larva and probably in diapause.

**Effectiveness of different sampling methods:** All British and Irish records of this species appear to have been at light-traps.



**Range:** There are only two confirmed Irish records (near Kenmare, Co. Kerry, and Ahakista, Co. Cork (Skinner, 1998). In Britain it is apparently much more widespread, occurring in northern England, East Anglia and southern Scotland; also locally on the Isle of Man. There are also a few isolated records from southern England and Wales. Widely distributed in Europe, extending as far north as northern Sweden, but not recorded from Iberia, and known only locally in the Balkans.

**Status:** Little known, but should probably be described as a rare resident.

**Conservation:** Insufficiently known, but may prove to be a rare resident in need of protection.

**Compiler:** K. G. M. Bond. Date of compilation: 24<sup>th</sup> November 2005.

### *Polia bombycina*

**Species name:** *Polia bombycina* (Hufnagel, 1766) (*Phalaena*). English Name: PALE SHINING BROWN.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *advena* (Denis & Schiffermüller, 1775); *nitens* (Haworth, 1809); *unicolor* (Tutt, 1902).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Aplecta advena/Polia nitens*).

**Macrohabitats:** Poor-soil scrub; grassy forest clearings; fallow land.

**Adult microsites:** Not indicated.

**Flight Period:** Ireland: insufficient data; in Britain from Mid-June to Mid-July (Skinner, 1998).

**Oviposition site:** Not indicated, but they are "laid in large, neat batches" (Lorimer, 1979).

**Larval microsites:** Probably mainly on the foliage of understorey trees and shrubs; probably also on tall herbs.

**Food and feeding habitats** (Lorimer, 1979); (Koch, 1984); (Emmet, 1991); (Gustafsson, 2004); (Salvela, 2004): Not known in the wild in Britain, but Emmet suggests that it is probably polyphagous on herbaceous plants. Koch lists "heather", *Cytisus scoparius*, *Rubus idaeus*, *Rubus fruticosus* agg. and other unspecified plants. Salvela (2004) lists a wide range of tall herbs, trees and shrubs, including *Betula* spp., *Sorbus aucuparia* and *Artemisia* spp. Gustafsson (2004) also includes deciduous trees and bushes among its foodplants.

**Effectiveness of different sampling methods:** Adults come freely to light, sugar, and flowers (Lorimer, 1979).

**Range:** Very rare; there are only historical records from Cos Louth, Carlow and Waterford. Donovan (1936) reports records from Castlebellingham (Thornhill) and Dundalk (Westropp), both Co. Louth, and in his *Supplement* section refers to a record of "*Aplecta advena*, Fab." from Maurice Haydock, on the banks of the River Slaney, Co. Carlow, the specimen having been seen by Westropp. There are three specimens in NMI labelled "Castle Bellingham [Co. Louth]". While it is possible that the

coastal records refer to migrants, it seems more likely that this species is an extinct former resident. In Britain this species is now largely confined to parts of southeast England and southern East Anglia, with a few scattered sites further north as far as Cumbria; it was last found in southern Scotland in the mid-nineteenth century, and has been declining generally (Goater, 1998). This decline has accelerated dramatically, so much so that the species is now one of those listed in the UK Biodiversity Action Plan for moths and butterflies (Hoare *et al.*, 2004). Generally distributed in mainland Europe, from Spain to central Fennoscandia, but not recorded from Portugal, Albania or Turkey.

**Status:** Resident, possibly extinct, also possible migrant (Skinner, 1998).

**Conservation:** Impossible to assess, as this species has not been recorded for many years from Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 5<sup>th</sup> December 2005.

### *Polia nebulosa*

**Species name:** *Polia nebulosa* (Hufnagel, 1766) (*Phalaena*). English Name: GREY ARCHES.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *bimaculosa* sensu Esper, 1788; *grandis* (Donovan, 1802); *pallida* (Tutt, 1902).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Aplecta/Polia nebulosa*).

**Macrohabitats:** Mature and sapling acidophilous *Quercus* woodland; mature and sapling *Betula* woodland; softwood alluvial forests; rich-soil scrub; scattered *Salix*, *Acer pseudoplatanus* and *Betula* trees; field margins and hedges; urban parks.

**Adult microsites:** "Usually hides by day, but sometimes found at rest on tree-trunks and fences" (Lorimer, 1979).

**Flight Period:** Mid-June to early July. Skinner (1998) gives June and July, while Lorimer (1979) gives early June to mid-July.

**Oviposition site:** "Laid on the pre-hibernation plants in large, orderly batches" (Lorimer, 1979).

**Larval microsites:** On herb-layer plants before hibernation, later on foliage of trees.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): On herbs, such as *Rubus fruticosus* agg., *Lonicera periclymenum*, *Rumex* spp. before, and immediately after overwintering. In spring climbs to feed on trees such as *Betula* spp., "rough-leaved willow" (*Salix* spp.), *Acer pseudoplatanus* as soon as the foliage is available. Overwinters in larval diapause, under trees, probably on the ground. Pupation takes place in a subterranean cocoon in May.

**Effectiveness of different sampling methods:** Regularly taken at both Actinic and Mercury-vapour light-traps. The adult is also reported to come to flowers and sugar soon after dusk (Lorimer, 1979).

**Range:** Widespread and locally common over most of Ireland, especially in or near deciduous woodland. Common in southern Britain, becoming more confined to woodland further north; in Scotland rather scarce and local, mainly in the west, but extending to the extreme north of the mainland. Generally distributed over mainland Europe, extending north to southern or central Fennoscandia, but not recorded from Albania, Greece or Turkey.

**Status:** Resident.

**Conservation:** This species is dependant on the maintenance of wooded areas combined with a good supply of herbaceous species for larval development. It does not appear to be under significant threat in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

*Polychrysia moneta*

**Species name:** *Polychrysia moneta* (Fabricius, 1787) (*Noctua*). English name: GOLDEN PLUSIA.

**Nomenclature:** Plusiinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Plusia/Polychrysia moneta*).

**Macrohabitats:** Urban parks & ornamental gardens.

**Adult microsites:** Rests by day on fences and among withered leaves (Lorimer, 1983).

**Flight Period:** The only Irish dates found were near the middle of June. In Britain late June to early August generally, but partially bivoltine in the south, flying again in September (Skinner, 1998).

**Oviposition site:** Not indicated.

**Larval microsites:** On tall herbs and low-growing plants of the herb layer; in fruiting bodies of herb layer plants.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally from September to May on the buds and unripe seeds of *Delphinium* spp. and *Acontium* spp. in gardens. Overwintering in larval diapause that lasts from about November to March.

**Effectiveness of different sampling methods:** Has been taken at light-traps, but more often found on flowers (Lorimer, 1983).

**Range:** First found in 1939, at Seapoint, Co. Dublin. Later, about the 1950's it became established in the southern suburbs of Dublin, but there appear to have been no records from there since about 1970, but one was reported from Loughgall, Co. Armagh in 1971 (Thompson & Nelson, 2003). In Britain it was unknown before 1890, but during the 20<sup>th</sup> century it became established and spread though much of England and Wales, and into Scotland as far north as Inverness. From about the 1950's it decreased and it has now disappeared from many of its former localities in Scotland and

Northern England (Lorimer, 1983, Skinner, 1998). Until about 1875 the species was known from only south-eastern Europe and western Asia, but it later spread across most of Europe, and is now known from as far north as central Fennoscandia; but it is not known from Portugal or the south-eastern Balkans at present (Karsholt & Razowski (1996).

**Status:** A very local resident, possibly now extinct.

**Conservation:** Impossible to assess, as the current Irish status is unknown, but the species can hardly be considered a native.

**Compiler:** K. G. M. Bond. Date of compilation: 24<sup>th</sup> November 2005.

### *Polymixis lichenea*

Species name: *Polymixis lichenea* (Hübner, 1813) (*Noctua*). English Name: FEATHERED RANUNCULUS.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** None.

**Subspecific status:** None, but considerable geographical variation occurs, and various aberrations have been named.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Epunda/Eumichtis lichenea*).

**Macrohabitats:** Old walls.

**Adult microsites:** Not indicated.

**Flight Period:** Mid-September to mid- or late October.

**Oviposition site:** Not stated; the ova are laid singly or in batches.

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally from October or November to April or May, on the foliage of a wide range of forbs, in particular on *Sedum acre*, *Armeria maritima* and *Centranthus ruber*. Other foodplants mentioned include *Spergularia*, *Plantago*, *Allium*, *Rubus fruticosus* agg. and *Veronica* spp., as well as *Cynoglossum officinale* and *Urtica dioica*. Overwintering as a larva and pupating in a subterranean cocoon in April.

**Effectiveness of different sampling methods:** Adults have been taken at light. They are also attracted to ivy-blossom, blackberries and sugar according to Lorimer (1983).

**Range:** Extremely local; it is almost entirely confined to parts of east Down and the Dublin area, where it has been taken in good numbers at several locations in the eastern suburbs, and also further south at Bray Head and Cronykeery, near Ashford, both Co. Wicklow. There is also an old record from Co. Kerry, and a recent one from Tramore, Co. Waterford, where one was taken at light on 25th October 1999 (Bryant, pers. comm.). In Britain this species occurs locally on coasts

from Yorkshire and Cumbria southwards, being most widespread on the south coast of England and the southwest and north coasts of Wales. There are scattered inland records mainly in southern England. In Scotland it occurs very locally on the coast in the south and southeast. It also occurs locally on the coast of the Isle of Man. This species is found very locally on coasts, and more rarely on mountains in western parts of Europe, from Spain and France to the southwest extremity of the Netherlands, as well as from Corsica, Sardinia, Sicily and mainland Italy. There is also a record from Denmark.

**Status:** Local resident.

**Conservation:** The level of threat to this species is unknown, partly due to the absence of recent recording in the Dublin area. The habitats requirements of this species should be investigated.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Polymixis xanthomista*

**Species name:** *Polmixis xanthomista statices* (Gregson, 1869) [*xanthomista xanthomista* (Hübner, 1819)] (*Noctua*). English name: BLACK-BANDED.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *nigrocincta* (Treitschke, 1825).

Subspecific status: British and Irish specimens are referable to subsp. *statices*, which is distinguished by the strongly contrasting median fascia; also by having the ochreous irroration usually restricted to the upper stigmata and the subterminal area, unlike many mainland European races in which it is extensive.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Polia nigrocincta (xanthomista)/Antitype xanthomista (nigrocincta)*).

**Macrohabitats:** Vegetated sea-cliffs.

**Adult microsites:** Not indicated.

**Flight Period:** Probably from about late August to mid-October; the single Irish record is October 11<sup>th</sup>.

**Oviposition site:** On the foodplant; the precise oviposition site is not specified; laid singly.

**Larval microsites:** On the flowers, and to a lesser extent the foliage of low plants of the herb layer; resting by day on a stalk, or below a leaf of the foodplant.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally from March to June, mainly on *Armeria maritima*, preferring the flowers to the foliage; other foodplants mentioned are *Plantago maritima*, *Anthyllis vulneraria*, *Campanula rotundifolia*, pupating in July in a cocoon just below the surface of the soil, often under a stone; overwintering as an ovum.

**Effectiveness of different sampling methods:** The adult is attracted to sugar and light, but not to flowers (Lorimer, 1983).

**Range:** There is only a single Irish record, from Castletownshend, West Cork, 1970 (Demuth, 1971). In Britain it is found very locally, on sea-cliffs in southwest England, southwest Wales and the Isle of Man. Found locally on mountains in western and central Europe, from Iberia and France to Thuringia in Germany, also in Poland and Slovakia, and very locally in the Balkans to Greece; also recorded from Sicily.

**Status:** Assumed rare resident.

**Conservation:** Insufficient information available, but as a sea-cliff species its habitats are probably unthreatened.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Protodeltote pygarga*

**Species name:** *Protodeltote pygarga* (Hufnagel, 1766) (*Phalaena*). English name: MARBLED WHITE SPOT.

**Nomenclature:** Eustrotiinae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *fasciana* sensu auctt.; *fuscula* (Denis & Schiffermüller, 1775); *fusca* (Haworth, 1809); *albidilinea* (Haworth, 1809); *albidilinea* misspelling.

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Erastria fuscula (fasciana)* / *Jaspidia pygarga/fasciana*).

**Macrohabitats:** Humid-flooded oligotrophic (gen.) & *Molinia* grassland; blanket bog & cutover bog.

**Adult microsites:** According to Bretherton (1983) the adult “rests by day on fences and trunks of trees, especially of Scots pine”; in Ireland it has been observed on a number of occasions by day, especially in Kerry.

**Flight Period:** From about mid-June to early August, however, one was recorded at Pullmans Wood, Co. Kerry on 15<sup>th</sup> May 1988. For Britain, Skinner (1998) gives late May to mid-July, while Bretherton (1983) refers to a probable partial second generation, in late August and September, which is known on the continent.

**Oviposition site:** Not stated.

**Larval microsites:** On herb layer plants, especially on tussocks of tall herbs.

**Food and feeding habitats** (Bretherton, 1983); (Emmet, 1991); (Skinner, 1998): Feeding externally at night on *Molinia caerulea*, *Brachypodium sylvaticum* and “other grasses growing in wet places on heaths and the edges of woods” (Bretherton, 1983); late July to October, then pupating in detritus, in a cocoon covered by fragments of soil, and overwintering there.

**Effectiveness of different sampling methods:** This moth has been found in numbers at all types of light-trap; it has also been observed several times on vegetation by.

**Range:** Widely distributed in boggy areas of the west and southwest of Ireland, as far north as Connemara, and Redwood Bog, North Tipperary; particularly common in Kerry around Kenmare and Killarney. It has also recently been discovered in Cos Down and Tyrone. In 2004 it was discovered in east Wicklow, and found again there, commonly in 2005; it was also discovered in Co. Wexford in 2005. According to Kane (1901); Donovan (1936) and Baynes (1964) the species was known only from Kerry and the far west of Co. Cork, and the distribution map in Heath & Emmet (1983) conveys the same impression. It is possible that it has actually spread extensively since then, but Thompson & Nelson (2003) consider that it has been much overlooked because it has been considered a “micro” by many lepidopterists. In Britain this species is widespread but rather local in southeast England; elsewhere it is locally found in East Anglia, southwest England and parts of north and west Wales. There are also very isolated populations in parts of the Midlands, Lincolnshire and as far north as south Yorkshire. Generally distributed over southern and central Europe, including some of the Mediterranean Islands; extending to the extreme south of Norway and central Sweden and Finland.

**Status:** Locally common resident in parts of the west and southwest; very locally distributed in other parts of Ireland.

**Conservation:** This species is not considered to be at risk in Ireland as appears to be undergoing an expansion of range.

**Compiler:** K. G. M. Bond. Date of compilation: 8<sup>th</sup> February 2006.

### *Pseudoips prasinana*

**Species name:** *Pseudoips prasinana britannica* Warren, 1913 [*prasinana prasinana* (Linnaeus, 1758)] (*Pyralis*). English name: GREEN SILVER-LINES.

**Nomenclature:** Chloephorinae: Nolidae: Lepidoptera: Insecta.

Synonymy: *fagana* (Fabricius, 1781); *sylvana* (Fabricius, 1794).

The nomenclature of *P. prasinana* and *P. bicolorana* (Fuessly, 1775) is discussed by Agassiz (1995).

Subspecific status: British and Irish specimens are referable to subsp. *britannica*, in which the cross-lines are emphasized by a darker green shade between them (Lorimer, 1983).

**Identification:** The adult is illustrated by Heath & Emmet (1983), Brooks (1991) (both as *Pseudoips fagana*) and Skinner (1998), and the larva in Heath & Emmet (1979). The terminalia are illustrated in Pierce & Beirne (1938) (as *Bena prasinana*).

**Macrohabitats:** *Quercus*/*Fraxinus*/*Corylus* & acidophilous *Quercus* forests; hardwood alluvial forests; scattered trees (*Quercus*); hedges & urban parks.

**Adult microsites:** The moth “rests among herbage by day, often fully exposed” (Lorimer, 1983).

**Flight Period:** Late May to early July. For Britain, Skinner (1998) has June and July, while Lorimer (1983) gives "late in May and throughout June.

**Oviposition site:** Ova are deposited on the foliage of trees.

**Larval microsites:** On the leaves of trees, resting by day on the undersides.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998); Norges Sommerfugler (2001); Gustafsson (2004); Salvela (2004): The larva feeds on the foliage of deciduous trees, mainly *Quercus* spp. and *Fagus sylvatica*, but sometimes on *Corylus avellana*, *Betula* spp., or rarely on other trees. It spends much of the day resting on the underside of a leaf. August to September; then pupating in a cocoon in detritus. Overwintering as a pupa.

**Effectiveness of different sampling methods:** The adult appears regularly at light-traps, and according to Lorimer (1983) is also attracted to honeydew and sugar.

**Range:** Locally distributed over much of Ireland, but found mainly near deciduous woodland, and apparently absent from much of the northwest, west and midlands. Widespread in areas of deciduous woodland in Britain, most common in southeast England, extending to southern Scotland, with isolated populations in the eastern and central Highlands and on the Isle of Mull, Inner Hebrides. Generally distributed over Europe, apart from Estonia and some of the Mediterranean islands; extending north to about 60°N in Fennoscandia.

**Status:** Local resident.

**Conservation:** The status of the Irish population appears to be relatively stable.

**Compiler:** K. G. M. Bond. Date of compilation: 15<sup>th</sup> February 2006.

### *Pyrrhia umbra*

**Species name:** *Pyrrhia umbra* (Hufnagel, 1766) (*Phalaena*). English name: BORDERED SALLOW.

Nomenclature: Heliiothinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *marginata* (Fabricius, 1775: 610), nec (Fabricius, 1775: 597); *rutilago* (Denis & Schiffermüller, 1775); *marginago* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Heliothis marginata (umbra)*/*Pyrrhia umbra (marginata)*).

**Macrohabitats:** Coastal *Ammophila* dunes, grey dunes & dune-slacks.

**Adult microsites:** Sometimes rests on flowers by day.

**Flight Period:** July, but probably also sometimes in June, as indicated by Bretherton (1983).

**Oviposition site:** Ova are laid singly on budding shoots of low herbs, possibly occasionally on buds of trees.



**Larval microsites:** On the fruiting bodies of low herbs.

**Food and feeding habitats** (Bretherton, 1983); (Emmet, 1991); (Skinner, 1998): Usually on *Ononis* spp. (i.e. *O. repens* in Ireland); but *Hyoscamus niger* and *Honkenya peploides* have also been noted; feeding on the flowers and unripe seeds. Skinner (1998) reports that it has been found on young *Corylus avellana* bushes. Feeding externally in late July and August, pupating in August in a subterranean cocoon, where it overwinters.

**Effectiveness of different sampling methods:** Available Irish records are from mercury-vapour light-traps. According to Bretherton (1983) the adult may sometimes be found on flowers by day, and is also attracted to sugar.

**Range:** A local species, largely confined, at least recently, to coastal areas mainly in the east and south of Ireland. There are very few records from extensive areas of the midlands, west and northwest. In Britain it is widespread and locally abundant in the south and east of England, becoming scarcer and more confined to the coast northwards and westwards, extending to Morecambe Bay in the west and along the east coast of Scotland to Angus. Generally distributed over Europe, apart from Portugal, European Turkey and some of the Mediterranean islands; extending to the south and southeast of Norway, but to about 61°N in Sweden and about 64°N in Finland.

**Status:** Local resident.

**Conservation:** Little can be ascertained about the ecology of this species in Ireland, but it is likely to be vulnerable to loss of coastal grassland and grey-dune habitat.

**Compiler:** K. G. M. Bond. Date of compilation: 15<sup>th</sup> February 2006.

### *Rhizedra lutosa*

**Species name:** *Rhizedra lutosa* (Hübner, 1803) (*Noctua*). English name: LARGE WAINSCOT.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *crassicornis* (Haworth, 1809); *pilicornis* (Haworth, 1812); *vectis* (Curtis, 1833).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Hydroecia/Rhizedra lutosa*).

**Macrohabitats:** Humid/flooded eutrophic grassland; rich fen/fen-sedge beds & fen carr; coastal & non-coastal *Phragmites* reedbeds.

**Adult microsites:** The adult rests on reeds and other marsh grasses, usually partly hidden under a leaf (Goater, 1983).

**Flight Period:** Early or mid-September to mid-October. For Britain, Goater (1983) gives August to October.

**Oviposition site:** Not stated, but the ovum is probably laid on the stem-bases of tall herbs.

**Larval microsites:** In stem-bases and rhizomes of tall herbs.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Feeding from April to July in the stem-bases and roots of *Phragmites australis* "in dry places" (Goater, 1983). The occurrence of blanching of the leaves indicates the presence of the larva. Pupating in July in a cocoon in reed-humus amongst rhizomes of the foodplant. Overwintering as an ovum.

**Effectiveness of different sampling methods:** Adults have been taken at light-traps, but according to Goater (1983) they feed on flowers of reed and ivy, and occasionally come to sugar.

**Range:** Widely distributed over Ireland, but local, in both coastal and non-coastal reedbeds. Widespread in suitable habitats over England and Wales, but mainly eastern; mainly southern and eastern in Scotland, extending very locally to the Inner Hebrides, Morayshire and the Northern Isles. Generally distributed over mainland Europe, apart from Portugal, Albania and European Turkey, but also recorded Sardinia. Extending to southern and parts of central Fennoscandia, and to about 64°N around the Baltic. Once recorded from Iceland, probably as a migrant.

**Status:** Local resident.

**Conservation:** This species is vulnerable to any losses of its reedbed habitats.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Rhyacia simulans*

**Species name:** *Rhyacia simulans* (Hufnagel, 1766) (*Phalaena*). English name: DOTTED RUSTIC.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *pyrophila* (Denis & Schiffermüller, 1775).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as [unnamed genus] *pyrophila (simulans)*)/*Rhyacia simulans (pyrophila)*.

**Macrohabitats:** Coastal grey dunes.

**Adult microsites:** Aestivates or roost in sheds, outbuildings or under bark (Greatorex-Davies *et al.*, 2004).

**Flight Period:** In Britain from June to September or October; the few known Irish specimens have been taken in mid-August.

**Oviposition site:** Unknown.

**Larval microsites:** Unknown.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Unknown in the wild in Britain and Ireland, but Jonko (2005) indicates *Rumex* spp. and Gramineae, and Guyonnet & Lévesque (2005) indicate *Festuca* spp. In captivity young larvae have been fed on grasses, but

herbaceous plants such as *Rumex* spp. and *Taraxacum* agg. were needed for later instars. It is thought that the larva overwinters in Britain, as has been reported from Germany (Lorimer, 1979).

**Effectiveness of different sampling methods:** Little known, but Lorimer (1979) reports that it is especially attracted to blossoms of red valerian and *Buddleja*.

**Range:** Very scarce in Ireland, known only from old records from Cos Donegal and Sligo. In Britain it has a discontinuous distribution, being found mainly in central southern England; also on the Lancashire coast, and in widely scattered and isolated sites in Scotland, particularly in Orkney and on the Outer Hebrides. It varies greatly in abundance from year to year in Britain. Widespread but rather local over Europe including most of the Mediterranean Islands; extending to about 63°N in Fennoscandia.

**Status:** Very local resident, possibly now extinct.

**Conservation:** Impossible to assess, as the present Irish status of this species is uncertain.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Rivula sericealis*

**Species name:** *Rivula sericealis* (Scopoli, 1763) (*Phalaena*). English name: STRAW DOT.

**Nomenclature:** Hypeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *leeana* sensu Fabricius, 1781.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce & Metcalfe (1938) (as *Rivula sericealis*).

**Macrohabitats:** Grassy forest clearings; dry grassland (calcareous and non-calcareous); humid eutrophic non-flooded grassland & humid oligotrophic grassland; fallow land & field margins.

**Adult microsites:** "Frequently found on grasses and sedges after dark" (Bretherton, quoted in Lorimer, 1983). It is also very regularly seen by day when it is easily disturbed from the vegetation on which it rests.

**Flight Period:** Although the British literature (Lorimer, 1983), (Skinner, 1998) suggests the occurrence of a second generation of adults in late summer/early autumn, the Irish flight data suggest that there is one generation, on the wing from about mid-June to late August, peaking in mid-July.

**Oviposition site:** Ova are laid in batches on a leaf of the foodplant.

**Larval microsites:** On low-growing plants of the herb layer, on tussocks of grasses, sedges and rushes; hibernating in tussocks of grasses, sedges and rushes.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding mainly on *Brachypodium sylvaticum* and *B. pinnatum*, but also on other grasses. Irish populations probably

feed from about October to May, overwintering in larval diapause and, after feeding for about a month, pupating in a spun cocoon in May.

**Effectiveness of different sampling methods:** Found, often in numbers, at light-traps, but at least as often found flying by day in grassy areas.

**Range:** Generally distributed over Ireland and common in many areas. In a few areas such as the north of Northern Ireland and some inland parts of the southeast the species seems to be more local. In Britain this species is widespread and common in southern England, East Anglia and Wales. Elsewhere it is common in the Isle of Man, Cumbria, but scarce or absent from other parts of England. In Scotland it is widespread in the west, southwest and Inner Hebrides, but otherwise scarce, to Ross-shire, and almost totally absent from the east. Generally distributed across central and southern Europe, unrecorded only from Crete; extending northwards to south-eastern Norway and most of the Baltic coast in Sweden.

**Status:** Resident.

**Conservation:** This species is not considered under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

### *Rusina ferruginea*

**Species name:** *Rusina ferruginea* (Esper, 1785) (*Phalaena* (*Noctua*)). English name: BROWN RUSTIC.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *umbratica* (Goeze, 1781), nec (Linnaeus, 1758); *tenebrosa* (Hübner, 1803); *phaeus* (Haworth, 1803); *obsoletissima* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). . The terminalia are illustrated in Pierce (1909, 1942) (as *Rusina tenebrosa*).

**Macrohabitats:** Tall-herb & grassy forest clearings; fallow land and field margins.

**Adult microsites:** Not stated.

**Flight Period:** Early June to mid-July. For Britain Goater (1983) gives June and July.

**Oviposition site:** Not indicated.

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Polyphagous on herbaceous plants, among which Goater mentions in particular *Rumex* spp., *Polygonum* spp., *Fragaria* spp., *Vicia* spp., *Plantago* spp., and *Senecio vulgaris*; from August, through the autumn, and following overwintering diapause, in April and May. Pupation takes place in a subterranean cocoon in May.

**Effectiveness of different sampling methods:** Frequently taken at Actinic and Mercury-vapour light-traps. The moth also comes freely to sugar and flowers (Goater, 1983).

**Range:** Generally distributed and fairly common over most of Ireland, but it is somewhat scarcer in the northwest. It is also generally distributed over Britain to the north of the Scottish mainland, and in the Inner Hebrides, and common in many areas. It is found in all countries of the European mainland, apart from Turkey, extending north to central Fennoscandia.

**Status:** Resident.

**Conservation:** This species does not appear to be vulnerable in Ireland.

**Compiler:** K.G.M. Bond. Date of compilation: 26<sup>th</sup> November 2004.

### *Schrankia costaestrigalis*

**Species name:** *Schrankia costaestrigalis* (Stephens, 1834) (*Cledeobia*). English Name: PINION-STREAKED SNOUT.

**Nomenclature:** Strepsimaninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *costistrigalis* misspelling.

Subspecific status: None.

**Identification:** The British species of *Schrankia* are discussed and illustrated in Reid (1972). The terminalia are illustrated in Pierce & Metcalfe (1938) (as *Schrankia costistrigalis*) and in Bretherton (1983). The male terminalia are illustrated in Reid (1972).

**Macrohabitats:** Humid oligotrophic grassland; wet heath

**Adult microsites:** Not indicated.

**Flight Period:** Early July to about mid-August; and in smaller numbers from late August to mid-October in a second generation. In Britain from about late June to early June, and in a second generation between late August and early October (Bretherton, 1983); (Skinner, 1998).

**Oviposition site:** Not indicated.

**Larval microsites:** Probably on low shrubs, low-growing plants of the herb layer and hummocks of small forbs; probably overwintering in hummocks of small herbs and herb-layer litter.

**Food and feeding habitats** (Bretherton, 1983); (Emmet, 1991); (Skinner, 1998): The natural foodplant in Britain and Ireland is unknown, but blossoms of *Calluna vulgaris* or *Thymus* spp. have been suggested; and Gustafsson (2004) indicates dried leaves of various herbs in Sweden. Feeding from October to April of the following year, overwintering in larval diapause, and pupating in a cocoon in May.

**Effectiveness of different sampling methods:** The adults have been taken at various type of light-trap, and also at Malaise traps. They have also been recorded visiting heather blossom and sugar (Bretherton, 1983).

**Range:** Until fairly recently this species was known in Ireland from only a few localities in the west and southwest, apart from one site in Rathdrum, Co. Wicklow. More recent light-trapping has shown it to be widely scattered in western Ireland. In addition it has been found at sites in East Cork and Co. Waterford as well as cos Wexford and commonly in east Wicklow. As recently as 1997 it was confirmed as a resident in Northern Ireland and it now known from widely scattered sites in there, but mainly in the southern half. It is now also known from a number of sites in Donegal. It seems likely that the species has been overlooked as a "Micro" until recently rather than having increased its range. In Britain, this species is widely scattered but local over central and southern areas and Wales, but local further north, in Cumbria and Yorkshire. It occurs locally in the Dumfries, central Scotland, and the western Highlands, as well as on Arran. Widely distributed over Europe except the north, absent from only Corsica and European Turkey in the south, and restricted to southern parts of Fennoscandia.

**Status:** Resident, apparently previously overlooked in many areas.

**Conservation:** This species does not appear to be in need on conservation measures in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

### *Shrankia taenialis*

**Species name:** *Shrankia taenialis* (Hübner, 1809) (*Pyralis*). English Name: WHITE-LINE SNOUT.

**Nomenclature:** Strepsimaninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *albistrigatis* (Haworth, 1809); *albistrigalis* misspelling; *albistrigatus* misspelling.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The British species of *Shrankia* are discussed and illustrated in Reid (1972). The male and female terminalia are illustrated Pierce & Metcalfe (1938) (as *Shrankia taenialis (albistrigalis)*) and also in Bretherton (1983). Only the male terminalia are illustrated in Reid (1972).

**Macrohabitats:** Grassy forest clearings.

**Adult microsites:** Not known.

**Flight Period:** Only two Irish record of the adult, both in July. For Britain, Skinner (1998) indicates July and early August.

**Oviposition site:** Unknown.

**Larval microsites:** Unknown.

**Food and feeding habitats** (Bretherton, 1983); (Emmet, 1991); (Skinner, 1998); (Gustafsson, 2004): The natural foodplant in Britain and Ireland is unknown, but for Sweden, Gustafsson (2004) gives blossoms of *Calluna vulgaris* and *Thymus* spp. Larval stage from September to April of the following year, but overwintering in diapause from October to March, and pupating in a silken cocoon attached to a grass stem in June.

**Effectiveness of different sampling methods:** The moth comes sparingly to light, but comes early to sugar, at dusk, and probably also to ivy-bloom (Bretherton, 1983).

**Range:** Only known from two specimens, from Crom and Crockaclaven, Co. Fermanagh, where it was taken in July 2000. In Britain it occurs locally in damp woodland from Gloucestershire and Cambridgeshire southwards. Locally distributed over much of Europe, but absent from Iberia and Italy, although it has been recorded from Sardinia and Sicily; present in central European countries and the Balkans apart from Albania, Greece and European Turkey. It extends northwards locally to southern Sweden.

**Status:** Probably a very rare resident.

**Conservation:** Little is known of the habits of this species, but as it appears to be a very rare resident, the moth and its habitats should be protected.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

### *Scoliopteryx libatrix*

**Species name:** *Scoliopteryx libatrix* (Linnaeus, 1758) (*Phalaena* (*Bombyx*)). English Name: THE HERALD.

**Nomenclature:** Catocalinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *libatricus* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Gonoptera/Scoliopteryx libatrix*).

**Macrohabitats:** *Salix* swamp, softwood alluvial forest, & scattered *Salix* and *Populus* trees; urban parks; fen carr.

**Adult microsites:** Microsites used during the usual flight period are not indicated, but it overwinters, often communally, in outhouses or cellars (Lorimer (1983)

**Flight Period:** The adult seems to be found mainly from August onwards into autumn, and again after hibernation in May, but it has also been seen at other times of the year, including June, July and December. There is no clearly defined peak of abundance, indeed all the records on the *Irish Noctuidae database* are of singletons, and many are daytime observations, while the moth has also been taken at light in winter. In Britain it is bivoltine in southern England, with a lesser emergence in June from the offspring of overwintering females, and a larger brood in September, but it is univoltine from the Midlands northwards. Overwintering from November to March according to Lorimer (1983), but, in contrast Skinner (1998) states that it is single-brooded, from late July to November, hibernating, and reappearing from March to June.

**Oviposition site:** Ova are laid singly or in small clumps on twigs or leaves of the foodplant (Lorimer, 1983).

**Larval microsites:** On the foliage of mature trees, saplings and tall shrubs.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): The larva is reported to feed on “almost any species of willow (*Salix* spp.)” and on *Populus nigra*, *P. tremula* and “*P. x canadensis* (Italian Poplar)” (Lorimer, 1983), as well as on *Sorbus aucuparia* “in north” (Emmet, 1991). Feeding from June to July or August; then pupating in a cocoon in detritus. Overwintering as a hibernating adult.

**Effectiveness of different sampling methods:** The adult comes sparingly to light, but can also be found roosting in outhouses. It also reeds on flowers and sugar (Lorimer, 1983).

**Range:** Widely distributed over Ireland, and probably common in many localities; its weaker attraction to light-traps may mean that it is under-recorded relative to most other Noctuidae. Generally distributed and fairly common over most of England and Wales, more local in Scotland and the Isle of Man, but extending to Caithness and the Inner Hebrides. Generally distributed over most of Europe, apart from European Turkey and some of the Mediterranean islands; found throughout Fennoscandia apart from Norway north of about 63°N.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 15<sup>th</sup> February 2006.

### *Shargacucullia verbasci*

**Species name:** *Shargacucullia verbasci* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: THE MULLEIN.

**Nomenclature:** Cuculliinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Cucullia verbasci*). The male and female terminalia are also illustrated in Lorimer (1983).

**Macrohabitats:** Rich-soil scrub; tall-herb forest clearings; fallow land & field margins.

**Adult microsites:** “Rests head-upwards on a twig or stalk with the wings tightly folded around the abdomen and is difficult to detect” (Lorimer, 1983).

**Flight Period:** In Britain from mid-April to late May (Lorimer, 1983).

**Oviposition site:** Ova are laid singly on the under surface of the leaves of the foodplant.

**Larval microsites:** On forbs; rarely on shrubs; feeding on the leaves.

**Food and feeding habitats** (Baynes, 1964); (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds on the leaves of *Verbascum* and *Scrophularia* spp, occasionally also on *Buddleja* spp., in June and July. Baynes (1964) reported that Huggins had found larvae on *Scrophularia auriculata*,



and also refers to reports of larvae on “cultivated mullein”. The larva pupates in a strong cocoon “several inches below ground” (Lorimer, 1983) in August, and overwinters there, sometimes up to five times.

**Effectiveness of different sampling methods:**

**Range:** This species was recorded in the past from Co. Cork south coast sites (Timoleague, Castlefreke and Trabolgan) and also from Glengarriff, Co. Cork. There is also an old unconfirmed record from Co. Dublin, but there appear to have been no further records since the middle of the 20<sup>th</sup> century. There is no reference to its occurrence in Ireland in Lorimer (1983) or Emmet (1991). It is widely distributed over much of England, but most common in the south, extending to Yorkshire and the south of Cumbria, but only local in the north and south of Wales. Widely distributed over central and southern Europe, but extending northwards to southern Sweden.

**Status:** Rare resident, possibly extinct.

**Conservation:** This species, if still present, is vulnerable to any further loss of its habitat.

**Compiler:** K. G. M. Bond. Date of compilation: 23<sup>rd</sup> November 2005.

*Sideridis albicolon*

**Species name:** *Sideridis albicolon* (Hübner, 1813) (*Noctua*). English Name: WHITE COLON.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *cinerascens* (Tutt, 1889).

Subspecific status: None.

**Note:** Current Finnish and Norwegian lists place *albicolon* (Hübner, 1813) as a junior synonym of *turbida* (Esper, 1790).

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Mamestra albicolon*). The separation of *S. albicolon* and *Mamestra brassicae* on wing pattern is illustrated in Heath (1971b).

**Macrohabitats:** Coastal *Ammophila* dunes and grey dunes.

**Adult microsites:** “Hides by day under dune crests and among marram and lyme-grass from which it may be disturbed by raking or beating” (Lorimer, 1979).

**Flight Period:** The only three dated Irish records available are June 14<sup>th</sup>, July 4<sup>th</sup> and 20<sup>th</sup>; for Britain, Lorimer (1979) and Skinner (1998) give late May and June, with a partial second generation in southern England in late July and August.

**Oviposition site:** On the foodplant, placed singly.

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): Nocturnal, feeding externally in July, on a wide range of forbs, including *Chenopodium* and *Atriplex* spp., *Ononis repens*,

*Taraxacum*, *Calystegia soldanella*, *Polygonum* and *Rumex* spp., *Cakile maritima* and *Stellaria media*. Pupating in August in a subterranean cocoon, probably at some depth. Overwintering as a pupa.

**Effectiveness of different sampling methods:** Has been taken at mercury-vapour light-trap. At night the adult may also be found on flower-heads of grasses (Lorimer, 1979).

**Range:** Found very locally on coastal sand-dunes. It is unrecorded from extensive sections of coastline, such as cos Wicklow, Waterford and Clare to Sligo. A report of an inland locality in Donegal (Cromie & Shepard, 2003) would seem to need confirmation. In Britain this species is found locally on coastal sand-dunes as far north as northeast Scotland, and on the west coast to Cumbria, also on the Isle of Man. It is also found locally inland in sandy districts such as the Breckland area of Norfolk, and west of London. Local and partly coastal, but widespread, in southern and western Europe, also on Sicily; in the Balkans extending to Bulgaria and former Yugoslavia; local in southern Sweden, the extreme southwest of Norway and the extreme south of Finland; absent from Estonia.

**Status:** Very local resident.

**Conservation:** This species is vulnerable to any loss or degradation of its sand-dune habitats.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Standfussiana lucerneae*

**Species name:** *Standfussiana lucerneae* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: NORTHERN RUSTIC.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *renigera* sensu Stephens, 1829; *cataleuca* sensu Doubleday, 1847; *latens* sensu Stephens, 1829; *distinguenda* (Stephens, 1850).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Pachnobia/Ammogrotis lucerneae*).

**Macrohabitats:** Vegetated sea-cliffs.

**Adult microsites:** Not indicated.

**Flight Period:** July to September.

**Oviposition site:** Unknown in the wild.

**Larval microsites:** On low-growing herbs.

**Food and feeding habitats** (Lorimer, 1979); Emmet, 1991); (Skinner, 1998): Feeding nocturnally, externally on Gramineae and forbs, including *Campanula rotundifolia*, *Sedum acre*, *Primula* spp., *Saxifraga* spp., and *Festuca ovina*. The larva feeds from October onwards through the winter, pupating in a subterranean cocoon in April.

**Effectiveness of different sampling methods:** The adult comes to light-traps, but sometimes also flies in the afternoon in hot weather; it is also found on flowers and at sugar (Lorimer, 1979).

**Range:** Apart from some inland records from the Burren, Co. Clare, this species seems to be confined to the coast. It is fairly widespread in the west and common in some localities, but seems to be much scarcer on the east coast, where it is unrecorded from large stretches of coastline. In Britain this species occurs in the north and west, on sea-cliffs and locally in rocky places inland. It is, however unrecorded from much of southern Scotland. In England it is almost totally unknown from the east coast, and from south coast east of Dorset. This species has a disjunct distribution in Europe. In the south it is montane, in Spain, France and Italy; it also occurs in Switzerland, Austria, and the Balkans from former Yugoslavia to Greece; also in central Europe in Germany, Poland the Czech Republic and Slovakia; in Fennoscandia it extends locally to the far north of Norway, while in Sweden it is mainly coastal, in the south and east; but in Finland it is confined to the extreme southwest. It has also been recorded in Iceland.

**Status:** Local resident.

**Conservation:** Although local, this species does not seem to be under any significant threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 15<sup>th</sup> February 2006.

### *Stilbia anomala*

**Species name:** *Stilbia anomala* (Haworth, 1812) (*Phytometra*). English Name: THE ANOMALOUS.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *anomalata* misspelling.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Stilbia anomala*).

**Macrohabitats:** Humid/flooded oligotrophic grassland (gen.); vegetated sea-cliffs.

**Adult microsites:** Not known, but rests concealed by day (Goater, 1983).

**Flight Period:** Early August to late September

**Oviposition site:** Not indicated.

**Larval microsites:** On tussocks of herbs, especially tall herbs.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); Skinner, 1998): On moorland and heath grasses, in particular on *Deschampsia flexuosa*, overwintering in the larval stage. October to May, feeding only nocturnally in the spring, after which it pupates in a cocoon in detritus (Emmet, 1991) or the soil (Goater, 1983).

**Effectiveness of different sampling methods:** Has been taken at Mercury-vapour light-trap on several occasions. The adults are occasionally observed at rest by day.

**Range:** Found in rocky habitats in the west and locally on sea-cliffs elsewhere; it is also recorded from the limestone district of Co. Fermanagh, but only occasionally inland elsewhere. In Britain the species is common in moorland and hilly districts of the west and north; in lowland England it is scarce and very local, apart from small area in south Hampshire and Dorset. It is not uncommon on the Isle of Man. Confined to westernmost parts of mainland Europe, from Iberia to Norway where it occurs on the west coast of southern Norway. Also recorded from Germany, and there is a doubtful record from Italy.

**Status:** Local resident.

**Conservation:** This species is probably little threatened as its habitats are largely in steep inaccessible localities.

**Compiler:** K.G.M. Bond. Date of compilation: 26th November 2004.

### *Syngrapha interrogationis*

**Species name:** *Syngrapha interrogationis* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: SCARCE SILVER Y

**Nomenclature:** Plusiinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *aurosignata* (Donovan, 1808).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Plusia interrogationis*).

**Macrohabitats:** Dry siliceous heath; raised & blanket bog.

**Adult microsites:** Rests on rocks by day (Lorimer, 1983), but also flies diurnally.

**Flight Period:** Records on the *Irish Noctuidae Database* are from May and from late July to mid-August. According to Lorimer (1983) and Skinner (1998) the flight period is from late June to early August in Britain.

**Oviposition site:** Not indicated.

**Larval microsites:** On low shrubs; hibernating on the ground in litter (gen.).

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeding externally, both diurnally and nocturnally, on *Calluna vulgaris* and *Vaccinium myrtillus*, from September to early June of the following year. Overwintering as a small larva in diapause, presumably under the foodplant.

**Effectiveness of different sampling methods:** It has been found singly at light-traps, but has also been observed in flight by day

**Range:** Locally distributed over heathery areas of Ireland, but almost unknown in the south and east. It seems to be most frequent in cos Armagh and Tyrone, and on some of the midland raised bogs; but there appear to be no records from the blanket bogs of western Connaught. In Britain this species is resident on large areas of moorland from Devon, south Wales and the English east midlands northwards. Although it is unrecorded from most of southern Scotland, it is widespread in the Highlands, extending to Caithness and the Inner Hebrides; sporadic records from Shetland and south-eastern England are believed to refer to migrants. Widespread in central and northern Europe, extending to northern Fennoscandia, also reported from Iceland; further south it is more local and largely montane, reaching at least 2400m in the Massif Central and Pyrenees (Lorimer, 1983); it is unknown in Portugal, the former Yugoslavia, the southern Balkans and Mediterranean islands.

**Status:** Local resident.

**Conservation:** This species is vulnerable to loss of raised bog habitat due to drainage and afforestation, and has probably declined in much of the midlands already.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

### *Thalpophila matura*

**Species name:** *Thalpophila matura* (Hufnagel, 1766) (*Phalaena*). English Name: STRAW UNDERWING.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *texta* (Esper, 1787); *cytherea* (Fabricius, 1794); *prospicua* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Cerigo cytherea (matura)/Thalpophila matura (cytherea)*).

**Macrohabitats:** Dry calcareous grassland; machair; limestone pavement;

**Adult microsites:** Not indicated.

**Flight Period:** Early July to early August.

**Oviposition site:** Not indicated, but the ova are laid "singly, loose" (Goater, 1983).

**Larval microsites:** On tussocks of grasses, sedges and rushes.

**Food and feeding habitats** (Goater, 1983); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally, from September to the following May on various Gramineae, resting concealed by day. It pupates in a subterranean cocoon in June. Overwintering as a small larva.

**Effectiveness of different sampling methods:** Adults come to light-traps, sometimes in large numbers. According to Goater (1983), it also comes to flowers and sugar, and by day it can sometimes be found on flowers of *Senecio jacobaea*.

**Range:** A very local species, largely confined to certain coastal localities, such as around Newcastle, Co. Down, and parts of the Wicklow and Wexford coasts. It is, however, common in the limestone areas of the Burren, Co. Clare, and Berrigone, Co. Limerick. There are also several records of other widely scattered localities, some inland, but nearly all of these are historical. In Britain this species is widespread and locally common in lowland areas south of a line from Merseyside to the Humber; further north it becomes progressively more local and confined to the coast, extending in Scotland to the Inner Hebrides and Easter Ross. Generally distributed over Europe, apart from European Turkey and some Mediterranean islands, extending to southern Sweden and Finland and the extreme south of Norway.

**Status:** Local resident.

**Conservation:** The species appear to be in gradual decline, and is likely to be vulnerable to any further loss of calcareous grassland.

**Compiler:** K. G. M. Bond. Date of compilation: 6<sup>th</sup> February 2006.

### *Tholera cespitis*

**Species name:** *Tholera cespitis* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: HEDGE RUSTIC.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *confinis* (Stephens, 1829).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Luperina/Tholera cespitis*).

**Macrohabitats:** Unimproved dry grassland (calcareous and non-calcareous).

**Adult microsites:** Not indicated.

**Flight Period:** Mid-August to early September.

**Oviposition site:** Ova are laid "randomly" and singly (Lorimer, 1979).

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats:** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): After overwintering as an ovum the larvae hatch in about March to feed externally at night on coarser grass species such as *Nardus stricta*, *Deschampsia cespitosa* and *D. flexuosa*, pupating in June in a cell or cocoon in the grass roots.

**Effectiveness of different sampling methods:** Comes to light-traps, also comes to flowers and sugared flower-heads or leaves (Lorimer, 1979).

**Range:** Very local, occurring in the Burren, Co. Clare, and parts of West Galway, also scattered through Kerry and West Cork. Elsewhere there are only very isolated records, many of them

historical, but there are a few recent records from cos Down and Fermanagh. Locally common over much of England and Wales, becoming more local and largely coastal further north and extending to the south of the Outer Hebrides and Aberdeenshire. Generally distributed over western and central Europe to Iberia, mainland Italy, Sicily and the Balkans, apart from Albania and European Turkey; extending to about 61°N in southeast Norway, but to about 65°N in Sweden and Finland.

**Status:** Local resident.

**Conservation:** This species is vulnerable to any loss of its unimproved grassland habitat.

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.

### *Tholera decimalis*

**Species name:** *Tholera decimalis* (Poda, 1761) (*Phalaena* (*Geometra*)). English Name: FEATHERED GOTHIC.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *popularis* (Fabricius, 1775); *popularius* (Haworth, 1803); *typicoides* (Donovan, 1811).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Neuronina/Tholera popularis*).

**Macrohabitats:** Unimproved dry grassland (calcareous and non-calcareous).

**Adult microsites:** Not indicated.

**Flight Period:** August; for Britain, Emmet (1991) also includes September.

**Oviposition site:** Ova are laid "randomly" and singly (Lorimer, 1979).

**Larval microsites:** On low-growing plants of the herb layer.

**Food and feeding habitats** (Lorimer, 1979); (Emmet, 1991); (Skinner, 1998): After overwintering as an ovum the larva hatches in March to feed externally at night on various "hard" grasses (*e.g.* *Nardus stricta*, *Deschampsia* spp.); initially on the leaves, later descending and biting through the stems; this change of habit occurs along with a change of body colour from green to brown; March to July; pupating in a subterranean cocoon later in July.

**Effectiveness of different sampling methods:** Comes to light-traps; but according to Lorimer (1979) neither sex is attracted to flowers or sugar.

**Range:** Very local, mainly confined to the west and southwest in recent years. There are few recent records, and Thompson & Nelson (2003) also indicate a decline in Northern Ireland, with only three remaining recent sites, in Down and Tyrone. In contrast, Baynes (1964) described the species as "common and widely distributed" over Ireland.

**Status:** Resident, in decline.

**Conservation:** This species has shown an alarming decline in recent decades, and loss of its unimproved grassland biotope is a likely cause. Widely distributed over England, Wales and the Isle of Man, but becoming much more local in Scotland with isolated populations in the Inner Hebrides and as far north as southern Sutherland. Generally distributed over western and southern Europe, including Sicily, extending to Albania and Greece; extending to southern Norway, Sweden to about 64°N and central Finland.

**Compiler:** K. G. M. Bond. Date of compilation: 13<sup>th</sup> February 2006.

### *Xanthia citrigo*

**Species name:** *Xanthia citrigo* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: ORANGE SALLOW.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *aurantia* (Tutt, 1902)

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Xanthia/Tiliacea citrigo*).

**Macrohabitats:** Urban parks & ornamental gardens.

**Adult microsites:** Not indicated.

**Flight Period:** So far recorded only in late September and early October; according to Lorimer (1983) the flight period in Britain lasts from late August well into October.

**Oviposition site:** Ova are laid singly or in small batches near the buds of *Tilia* spp.

**Larval microsites:** On the foliage of trees.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): The larva feed from early spring on the opening leaf-buds of *Tilia* spp., especially *Tilia cordata*. As it grows it spins a daytime shelter by folding over the edge of a single leaf, later joining two leaves. When almost full-grown the larva descends by day to hide in the typical low stool growth, ascending rapidly at late dusk to feed. The full-fed larva aestivates for about six in a cocoon in the soil before pupating in June or July. Overwintering as an ovum.

**Effectiveness of different sampling methods:** Comes to light in numbers, and is more attracted to honey-dew, flowers or blackberries than to artificial baits such as sugar (Lorimer, 1983).

**Range:** Discovered at Cronykeery, near Ashford, Co. Wicklow, 28<sup>th</sup> September 2002. A further specimen was taken there on 3<sup>rd</sup> October 2004. Widespread in Britain in suitable habitat, but more local in Scotland where it extends to Easter Ross. Generally distributed over continental Europe to central Fennoscandia, but unrecorded from Portugal, Albania, Turkey and the Mediterranean islands.

**Status:** Resident; probably a fairly recent arrival, as the foodplant is not native.



**Conservation:** As the species is probably spreading slowly, conservation measures are not called for.

**Compiler:** K. G. M. Bond. Date of compilation: 9<sup>th</sup> February 2006.

*Xanthia icteritia*

**Species name:** *Xanthia icteritia* (Hufnagel, 1766) (*Phalaena*). English Name: THE SALLOW.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *icterita* misspelling; *fulvago* sensu Linnaeus, 1761; *cerago* (Denis & Schiffermüller, 1775).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Xanthia cerago* (*fulvago*)/*Cirrhia icterita* (*cerago*) (*fulvago*)).

**Macrohabitats:** *Salix* swamp; softwood alluvial forest; scattered *Salix* trees; field margins, hedges & urban parks; fen carr.

**Adult microsites:** Not indicated.

**Flight Period:** Mid-August to the beginning of October. According to Lorimer (1983) it emerges in early September in southern England, but mid-August in northern Scotland.

**Oviposition site:** Ova are laid behind the buds of trees, singly or in short rows.

**Larval microsites:** Initially in fruiting bodies of trees; later either on the foliage of these, or on the foliage of herbaceous plants.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds from March to early June, at first on the catkins of *Salix* spp. into which it bores; later either feeding on the foliage of the tree or, more often becoming polyphagous on herbaceous plants, then entering larval diapause in a subterranean cocoon before pupating in August. Overwintering as an ovum.

**Effectiveness of different sampling methods:** The adult is found regularly at light-traps, although Lorimer (1983) reports that it often escapes from traps before morning, and that it is also attracted in particular to the juices of sweet grasses such as *Glyceria fluitans*, as well as to autumn flowers and berries.

**Range:** Locally distributed over much of Ireland; but unrecorded from parts of the south and east, and Donovan (1936) reported that he had not seen the species in county Cork. Generally distributed in Britain, extending to Orkney and the Outer Hebrides. Generally distributed over Europe to central Norway and almost all parts of Sweden and Finland, but not recorded from Albania, European Turkey or the Mediterranean islands.

**Status:** Resident.

**Conservation:** This species does not appear to need conservation measures in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 9<sup>th</sup> February 2006.

***Xanthia togata***

**Species name:** *Xanthia togata* (Esper, 1788) (*Phalaena* (*Noctua*)). English Name: PINK-BARRED SALLOW.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *lutea* (Ström, 1783), nec (Stoll in Cramer, 1781); *flavago* (Fabricius, 1787), nec (Denis & Schiffermüller, 1775); *rubago* (Donovan, 1801); *silago* (Hübner, 1803).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Xanthia silago* (*flavago*)/*Citria lutea* (*flavago*) (*silago*)).

**Macrohabitats:** *Salix* swamp; softwood alluvial forest; scattered *Salix* & *Populus* trees; tall-herb and grassy forest clearings; fen carr.

**Adult microsites:** Not indicated.

**Flight Period:** Late August to mid-October.

**Oviposition site:** On trees; the ova are tightly inserted behind the buds.

**Larval microsites:** Initially in the fruiting bodies of trees; later on the foliage of forbs.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): The larva feeds from March to early June, at first on the catkins of *Salix* or *Populus* spp. into which it bores; later becoming polyphagous on herbaceous plants, after which it enters larval diapause in a subterranean cocoon prior to pupation in August. Overwintering as an ovum.

**Effectiveness of different sampling methods:** Adults are regularly taken at light-traps; but Lorimer (1983) states that they can also be found at autumn flowers, berries and sugar.

**Range:** Generally distributed over Ireland and fairly common in many localities. Generally distributed and locally common in Britain and the Isle of Man, extending to Orkney and the Outer Hebrides. Generally distributed over Europe apart from northernmost Norway, but not recorded from Albania, European Turkey or the Mediterranean islands, apart from Corsica.

**Status:** Resident.

**Conservation:** This species does not appear to be in need of conservation measures.

**Compiler:** K. G. M. Bond. Date of compilation: 9<sup>th</sup> February 2006.

### *Xestia agathina*

**Species name:** *Xestia agathina* (Duponchel, 1827) (*Noctua*). English Name: HEATH RUSTIC.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *albimacula* (Stephens, 1829); *rosea* (Tutt, 1892).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Senta/Amathes agathina*).

**Macrohabitats:** Wet heath & dry siliceous heath; raised bog, blanket bog & cutover bog.

**Adult microsites:** "Rests by day among the heather" (Goater, 1979)

**Flight Period:** Late August to about the middle of September.

**Oviposition site:** Not indicated.

**Larval microsites:** On low shrubs.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally on *Calluna vulgaris*, from October to about May, without diapause, pupating in a cocoon low in the stems of the foodplant in June.

**Effectiveness of different sampling methods:** The adult has been taken at both actinic and mercury-vapour light-traps. Goater (1979) states that it flies over the heather at dusk and again late at night, simultaneously feeding on the flowers of its foodplant.

**Range:** Widely distributed in heathery sites of the west and north, and in some Midlands raised bogs, but evidently rare elsewhere. Local but widespread in Britain where it is found on large tracts of heather, extending to the north of the Scottish mainland. This species has a distinctly western distribution in Europe; extending locally eastwards from Iberia and France to Denmark, Germany, Poland and Estonia; it also occurs in Italy and Switzerland.

**Status:** Resident.

**Conservation:** Although this species is probably not under significant threat in western parts of Ireland, it is vulnerable to loss of raised bog habitat in the Midlands and East.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Xestia alpicola*

**Species name:** *Xestia alpicola alpina* (Humphreys & Westwood, 1843) [*alpicola alpicola* (Zetterstedt, 1839)] (*Hadena*). English Name: NORTHERN DART.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *hyperborea* (Zetterstedt, 1839); *carnica* (Hering, 1846); *albicola* misspelling.

Subspecific status: British and Irish specimens are referable to subsp. *alpina*. The nominate subspecies is described as being greyer and lacking the rich red coloration and stronger markings of subsp. *alpicola* (Goater, 1979). There is also considerable local variation, and specimens from Ireland and Northern England are reported to resemble those from Perthshire, while being less brightly coloured (Goater, *loc. cit.*).

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Pachnobia alpina (hyperborea)/Amathes albicola (hyperborea) (alpina)*).

**Macrohabitats:** Montane grassland; montane heath.

**Adult microsites:** On vegetation close to the ground, on rock faces.

**Flight Period:** Irish data are too few for generalisation; for Britain Goater (1979) indicates June to August, generally believed to be in alternate years. The adult has been recorded in an even year (1972) in Mayo, but in an odd year (1973) in Donegal.

**Oviposition site:** Not indicated.

**Larval microsites:** On low shrubs.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): On *Empetrum nigrum*, but possibly also on *Calluna vulgaris*. The month of larval hatching is July according to Goater (1979), but Skinner (1998) gives August, and Emmet (1991) indicates September; taking two years to develop, overwintering twice and pupating in May of the second year in detritus without cocoon.

**Effectiveness of different sampling methods:** Found occasionally at mercury-vapour light-trap, but not attracted to sugar; also found occasionally on rocks or scrambling over sparse vegetation. It has also been netted "often in appalling conditions, on mountains at night" (Goater, 1979). Pupae have been obtained in "even years" by scraping the surface-covering of lichens from damp channels between clumps of the larval foodplants" (Goater, *loc. cit.*)

**Range:** Only known from two montane sites in Ireland: the Nephin Range, Co. Mayo and at 1700 feet [515m] in the Blue Stack Mountains, Co. Donegal (Redway, 1973); (Redway & Heath, 1973). Found locally on high ground in Britain from Cumbria northwards, generally above 450m, and has been found as high as 850m, but occurring lower down further north to reach close to sea-level in the Northern Isles. The nominate form is widespread in Fennoscandia, extending to north of the Arctic Circle, and it is occasionally found in Denmark. It is represented by other subspecies on the mountains of Central Europe extending southwards to Italy and eastwards to Slovakia. It has also been recorded from the Baltic States, Poland and northern parts of European Russia.

**Status:** Rare and very local resident.

**Conservation:** As this species is currently known from only two sites in Ireland, its habitat should be protected from overgrazing and afforestation.

**Compiler:** K. G. M. Bond. Date of compilation: 31<sup>st</sup> January 2006.

*Xestia baja*

**Species name:** *Xestia baja* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: DOTTED CLAY.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Senta/Amathes baja*).

**Macrohabitats:** Sapling *Betula* forest & scattered *Salix* and *Betula* trees; tall-herb and grassy forest clearings.

**Adult microsites:** Not indicated.

**Flight Period:** Early July to about mid-August; rarely as early as the end of June.

**Oviposition site:** Not indicated.

**Larval microsites:** On trees, shrubs and herb layer plants.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeds externally and nocturnally; before winter diapause on forbs such as *Primula vulgaris* and *Rumex* spp.; in spring on deciduous trees and shrubs including *Myrica gale*, *Prunus spinosa*, *Rubus fruticosus* agg., *Salix* spp. and saplings of *Betula* spp.. September to May, pupating in a subterranean cocoon in June.

**Effectiveness of different sampling methods:** Found commonly at mercury-vapour light-traps; Goater (1979) also indicates sugar and, quoting Barrett, blossoms of ragwort and tansy.

**Range:** Generally distributed over Ireland, common in many areas of woodland or scrub. Widespread in Britain and common in many districts, extending to the Outer Hebrides and Shetland. Generally distributed over mainland Europe, also on Corsica; extending north in Norway to the Lofoten Islands, and to about 65°N in Sweden and Finland, but not recorded from Albania.

**Status:** Resident.

**Conservation:** This species is not considered threatened in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

*Xestia castanea*

**Species name:** *Xestia castanea* (Esper, 1798) (*Phalaena* (*Noctua*)). English Name: NEGLECTED RUSTIC.

**Nomenclature:** Noctuinae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *neglecta* (Hübner, 1803); *laevis* sensu Haworth, 1809.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Agrotis neglecta (castanea)/Amathes castanea (neglecta)*).

**Macrohabitats:** Wet heath & dry siliceous heath; blanket bog & cutover bog.

**Adult microsites:** "May sometimes be found by day at rest among the lower stems of long heather" (Goater, 1979).

**Flight Period:** The relatively few dated Irish records indicate a flight period from about mid-August to mid-September.

**Oviposition site:** Not indicated.

**Larval microsites:** On low shrubs.

**Food and feeding habitats:** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally in autumn and after winter diapause, chiefly on *Calluna vulgaris*, but also on *Erica cinerea* and *E. tetralix*; October to June, when it spins an underground cocoon in which it pupates in July.

**Effectiveness of different sampling methods:** Comes frequently to light, and according to Goater (1979), to sugar.

**Range:** Found locally in suitable habitat in western parts of Ireland; also found locally in Donegal, mainly in the northeast, with scattered, mainly old records elsewhere in Ulster. In Britain this species is found locally on heaths and moorland as far North as Orkney. It is absent from large areas of central and eastern England. Generally distributed over western and southern Europe, also on Sicily; unrecorded from only Luxemburg and former Yugoslavia; extending locally to about 62°N in Fennoscandia.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Xestia c-nigrum*

**Species name:** *Xestia c-nigrum* (Linnaeus, 1758) (*Phalaena (Noctua)*). English Name: SETACEOUS HEBREW CHARACTER.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Senta /Amathes c-nigrum*).

**Macrohabitats:** Unimproved dry non-calcareous grassland; lightly grazed improved grassland; coastal grey dunes, dune slacks, machair and vegetated sea-cliffs; fallow land & field margins.

**Adult microsites:** Not indicated.

**Flight Period:** The adults fly in May-June and again in August-October, with the largest numbers occurring around mid-September. During the 1970's the species was recorded quite frequently in July, mainly in the Dublin area, but this may have been due to cooler, later seasons in that decade. There is some uncertainty about the number of generations occurring in the wild, but up to six per year have been obtained in laboratory conditions (Goater, 1979).

**Oviposition site:** On the foodplant or the surrounding soil.

**Larval microsites:** On low-growing herbs and low shrubs.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): There is some uncertainty about the timing and whether the entire population follows the same pattern (Goater, 1979), but the larva is believed to feed externally at night on a wide range of plants; Goater (1979) specifically mentions *Stellaria media*, *Salix repens*, *Vaccinium myrtillus*, *Lamium album*, *Senecio vulgaris*, and *Epilobium*, *Verbascum*, *Plantago* and *Arctium* spp.; but Emmet (1991) and Skinner (1998) indicate *Urtica dioica* as the main foodplant. July-August, and from autumn to spring with winter diapause; pupating without a cocoon.

**Effectiveness of different sampling methods:** Comes frequently to light-traps, also to flowers, honey-dew and sugar (Goater, 1979).

**Range:** Widely distributed and apparently generally common in the south-eastern half of Ireland; more local elsewhere, and in Ulster it is largely confined to Co. Down, having declined in recent years in Co. Armagh (Thompson & Nelson, 2002). In recent years it has been found in particular abundance at light near the Wicklow coast (Tyner, pers. comm.). Common and widespread in England, Wales and the Isle of Man, becoming more local in Scotland, but has been recorded from the Outer Hebrides and Northern Isles. Generally distributed of Europe, extending to about 64°N in Norway and to the northern extremity of the Gulf of Bothnia in Sweden and Finland.

**Status:** Resident.

**Conservation:** This species is not considered under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 15<sup>th</sup> February 2006.

### *Xestia ditrapezium*

**Species name:** *Xestia ditrapezium* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: TRIPLE-SPOTTED CLAY.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *sigma* sensu Haworth, 1809.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Senta/Amathes ditrapezium*).

**Macrohabitats:** Mature *Quercus/Fraxinus/Corylus* forest; tall-herb and grassy forest clearings.

**Adult microsites:** Not indicated, but “rests concealed by day” (Goater, 1979).

**Flight Period:** It is difficult to assess the Irish flight period due to the paucity of Irish records; for Britain Goater (1979) indicates July, while Emmet (1991) gives June to early August.

**Oviposition site:** Not indicated.

**Larval microsites:** On low-growing plants of the herb layer, later on the foliage of shrubs and trees.

**Food and feeding habitats:** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeding externally, nocturnally, before winter diapause on forbs such as *Primula vulgaris*, *Taraxacum* agg., *Rumex* and *Stellaria* spp.; in spring on opening buds of *Salix* spp., *Swida sanguinea*, *Betula* spp., *Corylus avellana* and *Rubus fruticosus* agg. September to April; pupating in a subterranean cocoon in May.

**Effectiveness of different sampling methods:** According to Goater (1979) “after dark it visits the flowers of wood-sage, ragwort and rush, and comes commonly to light and sugar”.

**Range:** Very rare, possibly extinct; according to Baynes (1964) there are only two Irish records: Kilcornan, Co. Galway in July 1857, and Glenageary, Co. Dublin in 1956 (specimen in NMI). In Heath & Emmet (1979) there are distribution dots in two 10km squares in the Burren, Co. Clare, and one in Co. Down (or possibly Co. Louth), but the source of this information is unknown, and Bradley & Pelham (1967) do not mention the species in their Burren Lepidoptera survey. In Britain it is widespread in deciduous woodland, extending locally northwards to beyond Inverness, but it is most common in southern England and Wales. Widespread over southern and central Europe, but only extending north as far as Denmark and Latvia, apart from one old record in the south of Sweden; it also occurs on Sicily, but not in Albania or European Turkey.

**Status:** Uncertain, possibly a rare resident.

**Conservation:** There is insufficient information for assessment.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Xestia sexstrigata*

**Species name:** *Xestia sexstrigata* (Haworth, 1809) (*Noctua*). English Name: SIX-STRIPED RUSTIC.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *umbrosa* (Hübner, 1813).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Senta umbrosa/Amathes sexstrigata (umbrosa)*).

**Macrohabitats:** Tall-herb and grassy forest clearings; dry grassland (calcareous and non-calcareous); field margins.



**Adult microsites:** Not indicated.

**Flight Period:** Late July to late August. Goater (1979) and Emmet (1991) indicate July and August in Britain.

**Oviposition site:** Not indicated.

**Larval microsites:** On herb layer plants and shrubs.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): As it has proved difficult to separate the larvae of this species and *X. xanthographa*, there is some uncertainty (Goater, 1979), but it has been observed to feed before and after winter diapause on *Rubus fruticosus* agg., *Scrophularia auriculata* and *Endymion non-scriptus* and is believed to feed on various other herbaceous plants. Pupating on a subterranean cocoon in May.

**Effectiveness of different sampling methods:** Found commonly at mercury-vapour light-traps; Goater (1979) adds ragwort-bloom, honey-dew and sugar.

**Range:** Widespread and common in many areas, but appears to be less common in the far north, and in the west of Donegal, while no records have been found from Kerry. Widely distributed over Britain and common in most lowland localities, extending to the Outer Hebrides and Orkney. Generally distributed over western and central Europe, extending to Austria, Italy, Slovakia, Poland and the Baltic States; extending to about 62°N in Norway, but further north in Sweden and to about 65°N in Finland.

**Status:** Resident.

**Conservation:** This species is not considered threatened in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Xestia triangulum*

**Species name:** *Xestia triangulum* (Hufnagel, 1766) (*Phalaena*). English Name: DOUBLE SQUARE-SPOT.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: None.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Senta/Amathes triangulum*).

**Macrohabitats:** Scattered *Salix* and *Betula* trees; tall-herb and grassy forest clearings.

**Adult microsites:** Not indicated; "rests concealed by day" (Goater, 1979).

**Flight Period:** From about late June to mid-August, although a specimen was trapped in late May 2004 in mid-Cork. Goater (1979) indicates June and July in Britain.

**Oviposition site:** Not indicated.

**Larval microsites:** On trees, shrubs and herb layer plants.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): August to May, overwintering in larval diapause; polyphagous on a range of forbs, shrubs and trees, including *Rubus fruticosus* agg, *Rumex* and *Primula* spp., in spring also attacking the opening buds of *Salix*, *Betula* and *Crataegus* spp., *Prunus spinosa* and *Corylus avellana*. Pupating in May in a subterranean cocoon.

**Effectiveness of different sampling methods:** Found commonly at mercury-vapour light-traps; Goater (1979) also reports that it comes to lime-blossom, honey-dew and sugar at night.

**Range:** Generally distributed in suitable habitat over Ireland and common in some areas, especially in the south. Widespread in Britain, extending north to Orkney, but most common in the southern and central England and Wales. Widespread in western and central Europe, apart from Portugal; also occurring in Italy, but absent from the Balkans apart from Albania and Greece; extending north to central and southern Fennoscandia.

**Status:** Resident.

**Conservation:** This species is not considered threatened in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Xestia xanthographa*

**Species name:** *Xestia xanthographa* (Denis & Schiffermüller, 1775) (*Noctua*). English Name: SQUARE-SPOT RUSTIC.

**Nomenclature:** Noctuidae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *tetragona* (Haworth, 1809).

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1979), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Senta/Amathes xanthographa*).

**Macrohabitats:** Unimproved dry non-calcareous grassland; coastal grey dunes, machair & vegetated sea-cliffs.

**Adult microsites:** Not indicated.

**Flight Period:** From about the middle of July to late September, peaking around mid-August; occasionally recorded into the first half of October. For Britain Goater (1979) indicates August and September, but Emmet (1991) includes July.

**Oviposition site:** Not indicated.

**Larval microsites:** On herb layer plants and trees.

**Food and feeding habitats** (Goater, 1979); (Emmet, 1991); (Skinner, 1998): Feeding nocturnally chiefly on Gramineae, but also on *Rumex* spp., *Plantago* spp. and *Primula vulgaris* in autumn and

winter; and in spring, according to Barrett (1897) also on young shoots of *Salix* and *Quercus* spp. Late September to April, when it enters diapause, spinning a subterranean cocoon in which it pupates in June.

**Effectiveness of different sampling methods:** Found in large numbers at both actinic and mercury-vapour light-traps. Goater (1979) also reports that it visits flowers such as ragwort, tansy, *Buddleia* [*Buddleja*], burdock and heather, and that it comes readily to sugar.

**Range:** Common and generally distributed over Ireland, abundant in many areas. Common to abundant throughout Britain, extending to Unst in the Shetlands. Generally distributed throughout Europe, including the Mediterranean islands; extending to southern Fennoscandia, and locally to central Sweden and Finland.

**Status:** Resident.

**Conservation:** This species is not considered threatened in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 14<sup>th</sup> February 2006.

### *Xylena exoleta*

**Species name:** *Xylena exoleta* (Linnaeus, 1758) (*Phalaena* (*Noctua*)). English Name: SWORD-GRASS.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

Synonymy: *exoleta* misspelling.

Subspecific status: None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Calocampa/Xylena exoleta*).

**Macrohabitats:** *Salix* swamp; scattered *Salix* trees; non-flooded humid eutrophic grassland; marsh & tall-herb swamp.

**Adult microsites:** Not indicated.

**Flight Period:** From September onwards until early winter, and again after hibernation from March onwards to May or even early June.

**Oviposition site:** Not indicated; the ova are laid in batches of 20 or more (Lorimer, 1983).

**Larval microsites:** On trees, shrubs and herbs, on the foliage.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998); (Gustafsson, 2004): Feeding on the young foliage of deciduous trees and shrubs, and on herbs of a wide range of families, from May to July, pupating in a cocoon in detritus in August (Emmet, 1991), but in the soil according to Gustafsson (2004). According to Emmet it feeds nocturnally, but Lorimer implies that it also feeds by day. Overwintering as a hibernating imago.

**Effectiveness of different sampling methods:** According to Lorimer (1983), the adult feeds on ivy-blossom and berries in the autumn, and in spring on birch-sap, willow- or blackthorn-blossom. It is also attracted to sugar, and has been taken at mercury-vapour light-traps.

**Range:** There are scattered old records of this species from the north, east and west and south of Ireland, but it has not been found in the north since a specimen was taken at Loughgall, Co. Armagh in 1953. There are historical specimens in NMI from Crossmolina (Co. Mayo), Strangford, Co. Down and Killarney and Valentia (Co. Kerry). In Britain this formerly widespread species has declined seriously in England and Wales, and as a resident species is now largely confined to certain locations in northernmost England, Scotland and the Isle of Man. It is widely distributed over Europe, and is also recorded from Iceland. It is recorded from some of the Mediterranean islands northwards to the southern half of Sweden, where it is rare, and from the extreme south of Norway, as well as from Iceland.

**Status:** Very local resident.

**Conservation:** The precise habitat requirements of this seriously declining species need to be investigated. Its decline (or northward retreat) may be in part due to climatic change.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Xylena vetusta*

**Species name:** *Xylena vetusta* (Hübner, 1813) (*Noctua*). English Name: RED SWORD-GRASS.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *suffusa* (Tutt, 1902).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Calocampa/Xylena vetusta*).

**Macrohabitats:** Grassy forest clearings; fen carr.

**Adult microsites:** Not indicated.

**Flight Period:** From September to about the beginning of November, and again after hibernation in March and April.

**Oviposition site:** Not indicated; the ova are laid in batches of 20 or more (Lorimer, 1983).

**Larval microsites:** On trees, shrubs and herbs, on the foliage.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeds externally both diurnally and nocturnally on the young foliage of deciduous trees and shrubs, and on a wide range of herbs, including Gramineae, from May until the latter part of July; pupating in a fragile subterranean cocoon in July. Overwintering as a hibernating imago.

**Effectiveness of different sampling methods:** The adult can be taken at light-traps. Lorimer (1983) adds that the adult feeds on berries, overripe fruit, ivy-blossom and sugar in autumn, and on birch sap or early spring blossom after overwintering.

**Range:** While Baynes (1964) describes this species as being “moderately common and distributed from north to south”, Lorimer (1983) states that it is “northern and western” in Ireland. It is fairly common and widespread in Ulster, and seems to be fairly widely distributed in the west and southwest, and there are recent records from several sites in Co. Wicklow, while larvae were found in the Galtee Mts, Co. Tipperary in 1986. Widespread in Britain, but more common in south-western England and Wales, becoming scarce in eastern England; widespread in Scotland, extending to the extreme north of the Scottish mainland. Widespread in Europe, from Iberia, Sardinia and Greece northwards to northernmost Sweden, and in Norway to the Lofoten islands; also recorded from Iceland.

**Status:** Resident.

**Conservation:** This species does not appear to be under significant threat in Ireland

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Xylocampa areola*

**Species name:** *Xylocampa areola* (Esper, 1789) (*Phalaena* (*Noctua*)). English Name: EARLY GREY.

**Nomenclature:** Hadeninae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *lithoriza* (Borkhausen, 1792); *operosa* (Hübner, 1808).

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce (1909, 1942) (as *Xylocampa lithorhiza* (*areola*)/*Xylocampa areola* (*lithorhiza*)).

**Macrohabitats:** Mature and overmature *Quercus*/*Fraxinus*/*Corylus* and acidophilous *Quercus* forest; mature and overmature *Betula* forest; *Alnus* forest; hardwood alluvial forest; tall-herb and grassy forest clearings; hedges & urban parks.

**Adult microsites:** It may be found at rest by day on fences or tree-trunks (Lorimer, 1983).

**Flight Period:** From about the middle of March to early May, but Lorimer (1983) reports that it can emerge as early December of the previous year.

**Oviposition site:** On stems of the foodplant, laid singly.

**Larval microsites:** On upward-climbing lianas.

**Food and feeding habitats** (Lorimer, 1983); (Emmet, 1991); (Skinner, 1998): Feeds on the foliage of *Lonicera periclymenum*, later only nocturnally, spending the day well concealed, flattened against the woody stem of the foodplant; April or May to June; pupating in July and overwintering as a subterranean pupa in a strong cocoon.

**Effectiveness of different sampling methods:** Found regularly at mercury-vapour light-traps, but the adult is sometimes seen by day at rest on fences or tree-trunks. According to Lorimer (1983) it also feeds at spring blossom and comes occasionally to sugar.

**Range:** Widely distributed and fairly common over most of Ireland, but most common in deciduous woodland. It appears, however, to be absent from much of the western seaboard. Widely distributed and common in many wooded localities in England, Wales and the Isle of Man, becoming more local in northeast England, and with a scattered, mainly western distribution in Scotland, extending to Sutherland and the Inner Hebrides. Widespread in southern and western Europe, extending to southern and southwestern Norway and Sweden to about 59°N; but absent from most of eastern Europe, apart from Poland, and in the Balkans known only from Bulgaria.

**Status:** Resident.

**Conservation:** This species is not considered threatened in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 10<sup>th</sup> February 2006.

### *Zanclognatha tarsipennalis*

**Species name:** *Zanclognatha tarsipennalis* Treitschke, 1835. English Name: THE FAN-FOOT.

**Nomenclature:** Herminiinae: Noctuidae: Lepidoptera: Insecta.

**Synonymy:** *tarsicrinalis* sensu Hübner, 1796; *tarsicrinatus* (Haworth, 1809); *tentaculalis* sensu Haworth, 1809.

**Subspecific status:** None.

**Identification:** Illustrated by Heath & Emmet (1983), Brooks (1991) and Skinner (1998). The terminalia are illustrated in Pierce & Metcalfe (1938) (as *Zanclognatha tarsipennalis*).

**Macrohabitats:** Acidophilous *Quercus* forest (gen.); *Betula* forest (gen.); scattered *Salix* and *Betula* trees; tall-herb and grassy forest clearings; field margins, hedges, urban parks & ornamental gardens.

**Adult microsites:** "Frequents thick cover in gardens and lanes, where it is easily disturbed by day" (Bretherton, 1983).

**Flight Period:** Mid- or late June to early or mid-August. For Britain Bretherton (1983) indicates June to mid-August, while Skinner (1998) gives June and July, with an occasional second generation later.

**Oviposition site:** Not indicated.

**Larval microsites:** On the foliage of mature and understorey trees; tall and low shrubs; tall herbs and low-growing plants of the herb layer; on forest and herb-layer litter; overwintering on trees (in withered leaves) and in herb-layer and forest litter.

**Food and feeding habitats** (Bretherton, 1983); (Emmet, 1991); (Skinner, 1998): Feeding on withered leaves of various deciduous trees, in particular *Betula* and *Salix* spp. are mentioned (Salvela, 2004);

also on herbs, including *Polygonum* spp. and *Rubus* agg., from August to October or November; overwintering in larval diapause and pupating in May in a very slight cocoon in a chamber which has been formed the previous autumn.

**Effectiveness of different sampling methods:** The adult appears regularly at light-traps; and, according to Bretherton (1983), "more readily than its congeners to sugar".

**Range:** Widely distributed over Ireland, and fairly common in many districts, but there are few records from the midlands, and Bretherton (1983) describes the Irish distribution as "mostly near the coast". Widely distributed over England, Wales and the Isle of Man, but scarce in the northeast of England. In Scotland it is locally distributed over the southern half and the Inner Hebrides, with isolated populations near the Moray Firth. Widespread over Europe, absent from only Portugal, Albania, European Turkey and the Mediterranean Islands; extending north to central Sweden.

**Status:** Resident.

**Conservation:** This species does not appear to be under threat in Ireland.

**Compiler:** K. G. M. Bond. Date of compilation: 7<sup>th</sup> February 2006.

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