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VOLUME 2

PLANT COMMUNITIES

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SAND DUNE AND STRANDLINE COMMUNITIES

SD2

Honkenya peploides-Cakile maritima strandline community

Synonymy

Salsola kali-Atriplex glabriuscula Association Tuxen 1950

Species of note

Polygonum oxyspermum raii

Floristic composition and structure

The *Honkenya peploides-Cakile maritima* community is a distinctive, usually species-poor, strandline community which is divided into three sub-communities based on the relative abundance of certain species. The three sub-communities distinguished in this study are the *Cakile* sub-community (a), the *Honkenya* sub-community (b) and the *Salsola* sub-community (c). Apart from the three character species indicated above, the most frequent associated species are *Atriplex laciniata*, *Elymus farctus*, *Ammophila arenaria*, *Atriplex prostrata*, *Carex arenaria* and *Festuca rubra*, however apart from *Atriplex laciniata*, these species have a patchy and somewhat sparse occurrence. Of the three sub-communities outlined, the *Honkenya* sub-community tends to be the most species-rich.

Habitat

While all of the sub-communities of SD2 occupy similar positions in coastal sites, i.e. immediately in front of fore-dunes, there are clear differences in terms of associated substrate with the *Cakile* sub-community and the *Salsola* sub-community tending to occur only on pure sand only, while the *Honkenya* sub-community frequently occurs on mixed sandy/shingle substrates. The action of wind, and sometimes tides, play a determining role in the structure and composition of this *community*.

Distribution within the study area

The *Cakile* sub-community is widely distributed throughout the study area. however it is most frequent at sites in Co. Donegal. The *Honkenya* sub-community is frequent right throughout the study area while the *Salsola kali* sub-community is most commonly encountered at sites in counties Mayo and Galway.

Affinities

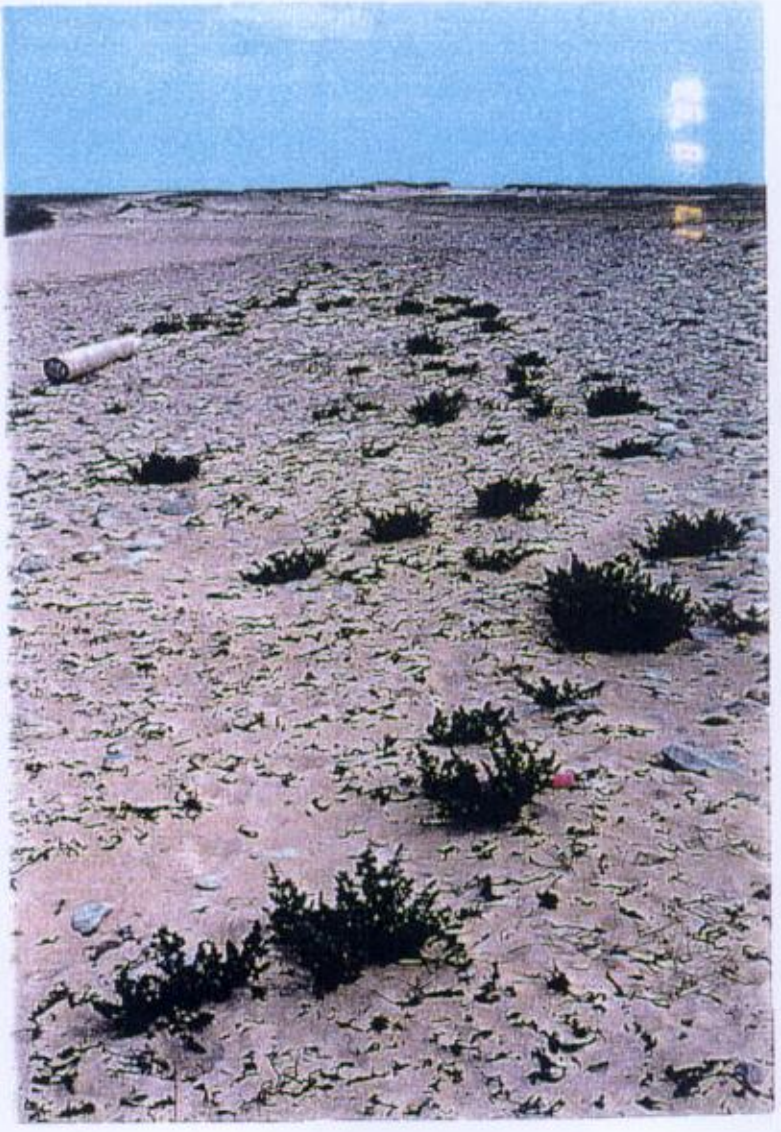
The treatment of the *Honkenya-Cakile* strandline in this study differs from the NVC system in that has been divided into three reasonably distinct sub-communities based on the dominance of one particular species. In Europe this type of vegetation has traditionally been placed in the Cakiletalia maritimae alliance.

Table SD2

Sample number	365	445	1413	395	313	44	133	1219	276	436	674	1337	1395	960	718	1030	1148	1220	1254	1332	1399
Sub-community	a	a	a	a	b	b	b	b	b	b	b	b	b	b	c	c	c	c	c	c	c
Slope, degrees	0	0	10	0	5	5	10	3	5	4	5	5	5	0	5	2	0	5	0	0	0
Aspect, degrees	0	0	100	0	320	290	340	20	0	130	360	240	280	0	110	340	0	60	0	0	0
Herb height, centimetres	30	25	12	15	10	5	5	25	3	15	50	5	5	3	2	12	40	20	3	10	30
Herb cover (%)	50	30	25	90	70	70	65	80	60	45	60	60	50	40	3	35	30	60	40	30	60
pH (2 numerals no point)	-	-	-	-	-	-	-	-	-	-	-	-	-	9.2	-	-	-	-	-	-	-
Bare rock (talus,outcrops,shin	0	0	0	0	0	50	60	0	0	65	0	0	0	0	5	20	0	0	0	0	0
Bare soil (including sand)	70	85	100	5	30	0	0	30	50	0	40	0	50	80	95	60	90	60	80	100	100
Cakile maritima	7	6	5	2	2															1	
Honkenya peploides					8	6	6	8	7	6	5	6	5	5	1	2					
Salsola kali															3	5	6	3	7	5	8
Atriplex laciniata			3	9	3	4	6			1			3					8		3	1
Elymus farctus boreali-atlanti				2				7		4			3	5		3			2		2
Ammophila arenaria	4			2					2		7				1		1				
Atriplex prostrata											1		5			3	1	5		2	
Carex arenaria				3				4						3							
Festuca rubra								2		1							1				
Polygonum oxyspermum ssl											1		3								3
Matricaria maritima				2				3					2								
Agrostis stolonifera				2						3											
Eryngium maritimum												1				2					
Galium aperine							4						2								
Glaux maritima										2			2								
Potentilla anserina						6								6							
Rumex crispus								3											1		
Elymus repens						3															
Cerastium diffusum										3											
Crepis vesicaria										1											
Leymus arenarius	3																				
Lolium perenne										2											
Lotus corniculatus										3											
Chamomille suaveolens																3					
Plantago lanceolata										3											
Puccinellia maritima																	1				
Trifolium repens								2													
Beta vulgaris maritima													1								
Taraxacum officinale agg										2											
Number of species	3	1	2	7	3	4	3	7	2	12	4	2	9	4	3	6	5	3	3	4	4

a = Cakile maritima sub-community
b = Honkenya peploides sub-community
c = Salsola kali sub-community

96504.11



96924.15

96916.37

SD3

Matricaria maritima-Galium aparine strandline community

Synonymy

Atriplex glabriuscula-Rumex crispus association Birks 1973

Constant species

Matricaria maritima, Atriplex prostrata

Species of note

Polygonum oxyspermum raii

Floristic composition and structure

This distinctive strandline community is dominated by the low, sprawling maritime species *Matricaria maritima* and *Atriplex prostrata*, accompanied by *Rumex crispus, Elymus farctus, Galium aparine, Honkenya peploides, Agrostis stolonifera, Ammophila arenaria* and *Carex arenaria*. Herb cover varies between 5 and 90% and the vegetation is relatively species-poor (mean = 6 species per quadrat). There is no moss layer present.

Habitat

The community is largely confined to shingle banks, however it may also occur in areas where there is a mixed sand/shingle substrate at the front of dune systems. In these exposed locations the vegetation is influenced by periodic inundation of the sea.

Distribution within the study area

In this study, SD3 was not recorded from sites in counties Donegal or Sligo, however it is reasonably frequent on shingle and sandy beaches in Galway and Mayo.

Affinities

The vegetation collected in this survey compares well with the SD3 as outlined by the NVC, however *Galium aparine* and *Stellaria media* are noticeably less frequent in the Irish samples.

Table SD3

Sample number	1239	1424	1412	878	1335	1389	738	863	
Slope, degrees	0	3	5	0	5	3	5	5	
Aspect, degrees	*0*	*200*	*80*	*0*	*170*	*220*	*280*	*340*	
Herb height, centimetres	5	30	80	20	5	3	15	30	
Herb cover (%)	10	90	5	50	30	50	65	70	
Bare rock (talus,outcrops	90	0	100	50	100	0	50	30	
Bare soil (including sand)	0	0	0	0	0	60	0	0	
									Constancy
Matricaria maritima		3		6	2	7	7	6	IV
Atriplex prostrata		10	4	4	5	5	4		IV
Rumex crispus			3		1	2	3		III
Elymus farctus				5	3			4	II
Galium aparine	4				4		3		II
Honkenya peploides				3		2		3	II
Agrostis stolonifera							4	3	II
Ammophila arenaria			3					4	II
Carex arenaria		2						4	II
Elymus repens		2							I
Cakile maritima			3						I
Catabrosa aquatica						2			I
Crithmum maritimum					2				I
Daucus carota							2		I
Festuca rubra								3	I
Glaux maritima							3		I
Hedera helix	4								I
Plantago coronopus								5	I
Plantago maritima								2	I
Polygonum oxyspermum raii						2			I
Silene vulgaris maritima	3								I
Solanum dulcamara			3						I
Beta vulgaris maritima				1					I
Number of species	3	4	5	5	6	6	7	9	Mean = 6

96921.18

SD4

Elymus farctus spp. *boreali-atlanticus* foredune community

Synonymy

Sociation a *Agropyron junciforme* Géhu and Géhu 1969

Constant species

Elymus farctus spp. *boreali-atlanticus*

Species of note

Polygonum oxyspermum raii, Calystegia soldanella, Euphorbia portlandica

Floristic composition and structure

The hardy, rhizomatous grass *Elymus farctus* characterizes this community, which is a widespread coastal vegetation type in Ireland. The community occurs as two distinct sub-communities, the species-poor (mean = 4 species per quadrat) *Elymus farctus* sub-community (a) and the more species-rich (mean = 9 species per quadrat) *Lotus corniculatus-Plantago lanceolata* sub-community (b). In addition to the species-poor nature of sub-community a, the presence of a number of species including *Rumex crispus, Atriplex prostrata* and *Salsola kali* serve to differentiate this sub-community. Species occurring with increased frequency in the *Lotus-Plantago* sub-community include *Poa pratensis, Agrostis stolonifera, Festuca rubra, Cerastium diffusum* and *Sedum acre*. Not surprisingly, there is a higher herb cover and less bare sand evident in the samples of sub-community b.

Habitat

The *Elymus farctus* foredune is a colonizing community typically found in front of actively eroding areas of *Ammophila arenaria* foredune. The different sub-communities recognised occur in slightly different habitats. The *Elymus farctus* sub-community is more typically found on the flat or gently undulating areas in front of

the dunes where the vegetation is transitional with the *Cakile-Honkenya* community, while the *Lotus-Plantago* sub-community is more common on sloping, actively eroding faces of foredunes. This observation is supported by the fact that the mean slopes of the *Lotus-Plantago* sub-community samples are higher than in the samples of the *Elymus* sub-community.

Distribution within the study area

This community is widespread throughout the area surveyed area and was recorded at almost all of the sites visited.

Affinities

In the NVC system there is only one, relatively species-poor, *Elymus farctus* community recognised, whereas in this study a species-rich sub-community is recognised. This species-rich sub-community is transitional to mobile *Ammophila* foredune (SD6) and the *Carex arenaria-Elymus farctus* sub-community of the *Festuca-Galium* grassland (SD8i), thus illustrating the fact that there is often no definite cut-off point between the *Elymus farctus* community and more stabilised types of dune vegetation. Although general observation suggests that the *Elymus farctus* foredune is common in Ireland, little phytosociological work on Irish dune vegetation has been published. One of the few accounts in existence is work on Malahide island, Co. Dublin (Ni Lamha, 1982) where species-poor, *Elymus farctus*-dominated foredune vegetation was classified in the Agropyretum boreo-atlanticum.

SD4

Sub-community	A	B
Slope, degrees	5 (0-20)	16 (0-80)
Herb height, centimetres	21 (2-80)	14 (3-30)
Herb cover (%)	46 (20-95)	51 (15-70)
Moss cover (%)	0	4 (0-50)
pH (2 numerals no point)	8.6	9 (8.7-9.3)
Bare rock (talus,outcrops,shi	4 (0-60)	4 (0-50)
Bare soil (including sand)	76 (0-100)	55 (20-80)
Elymus farctus boreali-atlanti	V	V
Rumex crispus	II	
Atriplex prostrata	II	
Salsola kali	I	
Matricaria maritima	I	
Tussilago farfara	I	
Leymus arenarius	I	
Lotus corniculatus	I	IV
Plantago lanceolata	I	III
Poa pratensis	I	II
Agrostis stolonifera	I	II
Festuca rubra		II
Cerastium diffusum		II
Sedum acre		II
Achillea millefolium		II
Catapodium rigidum		II
Euphorbia paralias		II
Leontodon autumnalis		II
Plantago coronopus		II
Asperula cynanchica		I
Bellis perennis		I
Desmazeria marina		I
Medicago lupulina		I
Eryngium maritimum	II	II
Carex arenaria	I	II
Taraxacum officinale agg.	I	II
Hypochoeris radicata	I	II
Atriplex laciniata	I	I
Potentilla anserina	I	I
Glaux maritima	I	I
Senecio jacobaea	I	I
Senecio vulgaris	I	I
Cakile maritima	I	I
Honkenya peploides	I	I
Polygonum oxyspermum raii	I	I
Trifolium repens	I	I
Cirsium arvense	I	
Galium verum	I	
Euphorbia portlandica	I	
Galium aparine	I	
Sedum anglicum	I	
Calystegia soldanella		I

	A	B
Daucus carota		|
Ranunculus repens		|
Ammophila arenaria		|
Anagallis arvensis		|
Armeria maritima		|
Cerastium glomeratum		|
Cirsium vulgare		|
Cochlearia officinalis		|
Crithmum maritimum		|
Leontodon hispidus		|
Polygonum aviculare		|
Ranunculus acris		|
Ranunculus bulbosus		|
Rumex acetosa		|
Trifolium pratense		|
Tortula ruralis ssp ruraliform		|
Bryum sp		|
Mean number of species	4	9
Number of samples	17	14

a = Elymus farctus sub-community
b = Lotus corniculatus-Plantago lanceolata sub-community

96916.13

96504.15

SD5

Leymus arenarius mobile dune community

Synonymy

Leymus arenarius consocies Bond 1952

Constant species

Leymus arenarius

Floristic composition and structure

The *Leymus arenarius* mobile dune community is dominated by the robust shoots of *Leymus*, accompanied by a very sparse associated flora and there is generally much bare sand present. The cover of *Leymus* generally exceeds 50% and the sparse associated flora includes *Elymus farctus*, *Elymus repens*, *Festuca rubra* and *Carex arenaria*.

Habitat

This pioneer sand-dune community is typically found along the edges of eroding *Ammophila* foredunes on a bare substrate of loose sand.

Distribution within the study area

The *Leymus* community has a restricted distribution within the study area, being confined to coastal sites in Co. Donegal. The community was recorded at Melmore, Lettermacaward and Keadue.

Affinities

Most of the *Leymus*-dominated vegetation recorded in this survey is quite species-poor and thus is best referred to sub-communities a and b (the species-poor sub-community and the *Elymus farctus* sub-community), however one of the samples is

sufficiently species-rich to be placed in the more species-rich *Festuca rubra* sub-community.

Table SD5

Sample number	264	312	226	287	
Sub-community	a	b	b	c	
Slope, degrees	20	20	10	0	
Aspect, degrees	260	300	260	0	
Herb height, centimetres	50	60	45	150	
Herb cover (%)	50	50	60	100	
Bare soil (including sand)	50	50	80	0	
					Constancy
Leymus arenarius	8	7	7	10	V
Elymus farctus		5			II
Elymus repens			4		II
Carex arenaria				2	II
Carex nigra				2	II
Festuca rubra				2	II
Rumex crispus				2	II
Number of species	1	2	2	5	Mean = 3

a = Species-poor sub-community
b = Elymus farctus sub-community
c = Festuca rubra sub-community

96501.02

96501.26

SD6

Ammophila arenaria mobile dune community

Synonymy

Elymo-Ammophiletum arenariae Braun-Blanquet and De Leeuw 1936

Constant species

Ammophila arenaria

Species of note

Calystegia soldanella

Floristic composition and structure

This community is the most species-poor expression of foredune vegetation dominated by *Ammophila arenaria*. Generally, the vegetation occurs on the seaward facing ridges of sloping foredunes, is dominated by *Ammophila arenaria* and is quite species-poor, with much bare sand present. The vegetation can be divided into 5 sub-communities, all of which have been recognised by the NVC system. The two most species-poor sub-communities are the *Elymus farctus* sub-community (a) and the *Leymus arenarius* sub-community (b), which average 5 and 4 species per quadrat respectively. The only other species to occur with any degree of frequency in these sub-communities are *Tussilago farfara* and *Senecio jacobea*. The typical sub-community (d), in which *Ammophila* usually attains almost complete dominance, is slightly richer in species than sub-community a or b. *Cirsium arvense* and *Eryngium maritimum* are slightly more common in this sub-community than the in the others. Sub-community e (the *Festuca rubra* sub-community) is the most species-rich of the sub-communities recognised, with an average of 9 species per quadrat. In addition to the higher frequency and cover of *Festuca rubra*, this sub-community is differentiated by the higher frequency of the grassland species *Hypochoeris radicata*, *Lotus corniculatus*, *Senecio jacobea*, *Trifolium repens*, *Thymus praecox* and

Taraxacum officinale agg. Sub-community e also has a relatively high species number and is characterised by the presence of *Carex arenaria*.

Habitat

The *Ammophila arenaria* mobile dune community is typically located along the seaward edge of dune systems and blowouts where a combination of high wind-speed and erosion (sometimes precipitated by human or animal trampling) leads to the occurrence of much bare sand and a species-poor vegetation type. Sub-communities a, b represent the most exposed examples of the community and in these erosion is such that cover of *Ammophila* can be reduced to c. 10%. Sub-community D is generally situated further back from the edge of the eroding foredune and it is in this sub-community that *Ammophila* is at its most healthy. Sub-communities e and f are the least exposed of the SD6 sub-communities and this is demonstrated by their lower mean herb cover and bare sand values and their higher mean number of species. It is SD6e which forms the transition to the *Ammophila arenaria-Festuca rubra* semi-fixed dune community, which is located further back the foredune and has even less bare sand present. The pH values of the sands associated with this community show little in the way of variation between the different sub-communities with means which vary between 8.7 and 9.0.

Distribution within the study area

This is a widespread and common vegetation type throughout the study area, being most frequently encountered in sites with actively eroding foredunes. It must be pointed out however that the community is rather rare in Co. Galway due to the fact that most of the sites have little or no tall *Ammophila* foredune present.

Affinities

This vegetation type shows a close affinity with the *Ammophila arenaria* mobile dune community and its constituent sub-communities outlined by the NVC.

Table SD6

Sub-community	A	C	D	E	G
Slope, degrees	15 (0-45)	13 (5-20)	21 (0-75)	19 (0-50)	0
Herb height, centimetres	54 (7-120)	50 (40-60)	67 (5-190)	51 (2-120)	120
Herb cover (%)	58 (30-90)	38 (25-50)	62 (40-90)	57 (20-80)	85
Moss cover (%)	2.5 (0-50)	0	0.9 (0-20)	37 (5-100)	45
pH	8.9 (8-9.6)	-	9	8.7 (8.4-9.1)	-
Bare rock (talus,outcrops	4 (0-60)	0	1.5 (0-40)	0	0
Bare soil (including sand)	60 (29-95)	70 (50-90)	57 (0-95)	47 (0-90)	40
Ammophila arenaria	V	V	V	V	9
Elymus farctus	V		I		
Leymus arenarius		V			
Festuca rubra	I		III	V	
Hypochoeris radicata	I		I	III	1
Lotus corniculatus	I		I	III	
Senecio jacobaea	I		I	II	1
Trifolium repens	I		I	II	
Taraxacum officinale agg.	I		I	II	
Thymus praecox arcticus	I			II	
Carex arenaria	I		I		3
Tussilago farfara	II	III	II		
Senecio vulgaris	I	III	I		
Daucus carota	I		I	I	3
Crepis capillaris	I		I	II	
Galium verum	I		I	I	
Plantago lanceolata	I		I	I	
Phleum arenarium	I		I	I	
Calystegia soldanella	I		I	I	
Tortula ruralis ssp ruraliform	I		I	I	
Poa pratensis	I		I	I	
Rumex acetosa	I		I		2
Anthyllis vulneraria	I		I		3
Cirsium arvense	I		II		
Eryngium maritimum	I		II		
Matricaria maritima	I		I		
Honkenya peploides	I		I		
Salsola kali	I		I		
Lolium perenne	I		I		
Leontodon autumnalis	I		I		
Plantago coronopus	I		I		
Euphorbia paralias	I			II	
Homalothecium lutescens	I			I	
Campanula rotundifolia	I			I	
Cerastium glomeratum	I			I	
Cerastium semidecandrum	I			I	
Pilosella officinarum agg	I			I	
Ranunculus bulbosus			I	I	
Cirsium vulgare			I	I	
Sagina nodosa			I	I	
Sedum acre			I	I	
Bellis perennis			I	I	
Sonchus oleraceus			I		3
Bryum pseudotriquetrum			I		7
Arabis hirsuta	I				
Arenaria serpyllifolia	I				
Sonchus arvensis	I				
Barbula sp	I				
Hypnum cupressiforme	I				
Suaeda maritima		III			
Potentilla anserina			I		
Atriplex laciniata			I		
Iris pseudacorus			I		

	A	C	D	E	G
Chenopodium album			I		
Achillea millefolium			I		
Glaux maritima			I		
Rumex crispus			I		
Cakile maritima			I		
Trifolium dubium			I		
Mnium hornum			I		
Bryum sp			I		
Carex flacca				I	
Centaurea nigra				I	
Heracleum sphondylium				I	
Jasione montana				I	
Koeleria macrantha				I	
Leontodon hispidus				I	
Anacamptis pyramidalis				I	
Trifolium pratense				I	
Desmazeria marina				I	
Ditrichum flexicaule				I	
Linum catharticum				I	
Luzula campestris				I	
Medicago lupulina				I	
Plantago maritima				I	
Polygala vulgaris				I	
Mean number of species	5	4	6	9	9
Number of samples	31	2	26	10	1

a = Elymus farctus sub-community
c = Leymus arenarius sub-community
d = Typical sub-community
e = Festuca rubra sub-community
g = Carex arenaria sub-community

96503.20

96913.22

SD7

Ammophila arenaria-Festuca rubra fixed dune community

Synonymy

Elymo-Ammophiletum arenariae Braun-Blanquet and De Leeuw 1936

Constant species

Ammophila arenaria, Festuca rubra, Taraxacum officinale agg., *Senecio jacobea, Trifolium repens, Galium verum*

Floristic composition and structure

This community represents a more stabilised, landward continuation of SD6. While *Ammophila* is still the physiognomic dominant, the cover of other herbs and mosses is much increased in comparison to SD6. Apart from *Ammophila*, the constant species in the community are *Festuca rubra, Taraxacum officinale agg. Senecio jacobea, Trifolium repens* and *Galium verum*. The community can be divided into two variants which are also recognised in the NVC system, namely the typical sub-community (a), which is grassy and the moss-rich *Tortula ruraliformis* sub-community (d). Sub-community d is more species-rich than sub-community a and also has a higher moss cover (47 as opposed to 25%). In addition to the increased cover of *Tortula ruraliformis* and *Homalothecium lutescens*, the presence of *Thymus praecox, Arenaria serpyllifolia, Sedum acre* and *Desmazeria marina* serve to differentiate sub-community d from sub-community a.

Habitat

This type of *Ammophila* community is mostly found on the landward-facing slopes of foredune ridges, often occurring where the dune flattens out into *Galium verum-Festuca rubra* grassland (SD8) with which it intergrades. Indeed in situations where *Ammophila* cover is low there is little to differentiate the SD7a and the SD8c. The two sub-communities of SD8 recognised show distinct habitat tendencies with the

Tortula sub-community located most frequently on the drier and sunnier, south-facing dune ridges and around the edges of old recolonizing blowouts. As was the case with SD6, the dry sandy substrate associated with this community has a high pH of c. 8.5.

Distribution within the study area

This is a widespread and common vegetation type throughout the study area, being most frequently encountered in sites with large areas of stabilised *Ammophila* dune. It must be again pointed out the community is rather rare in Co. Galway due to the fact that most of the sites have little or no *Ammophila* foredune present.

Affinities

As was the case with the *Ammophila arenaria* mobile dune community there is good agreement between the vegetation recorded in this study and the community outlined by the NVC.

Table SD7

Sub-community	A	D
Slope, degrees	12 (0-45)	4 (0-12)
Herb height, centimetres	62 (5-130)	35 (3-70)
Herb cover (%)	84 (50-100)	66 (60-80)
Moss cover (%)	25 (0-80)	47 (10-90)
pH (2 numerals no point)	8.6 (8.3-9.2)	8.5
Bare rock (talus,outcrops,shi	0	0
Bare soil (including sand)	20 (0-60)	15 (0-30)
Ammophila arenaria	V	V
Festuca rubra	V	IV
Taraxacum officinale agg	IV	II
Senecio jacobaea	IV	II
Trifolium repens	IV	I
Galium verum	IV	I
Tortula ruralis ssp ruraliform	II	V
Homalothecium lutescens	III	V
Thymus praecox arcticus	I	III
Pilosella officinarum agg	I	II
Sedum acre		II
Desmazeria marina		I
Lotus corniculatus	III	IV
Plantago lanceolata	III	III
Hypochoeris radicata	II	III
Rhytidiadelphus squarrosus	II	II
Rumex acetosa	II	II
Poa pratensis	II	I
Tussilago farfara	II	I
Carex arenaria	II	I
Anacamptis pyramidalis	I	II
Holcus lanatus	I	II
Brachythecium albicans	I	I
Leontodon hispidus	I	I
Leontodon taraxacoides	I	I
Eryngium maritimum	I	I
Senecio vulgaris	I	I
Linum catharticum	I	I
Pseudoscleropodium purum	I	I
Ditrichum flexicaule	I	I
Agrostis stolonifera	I	I
Cirsium vulgare	I	I
Luzula campestris	I	I
Cerastium diffusum	I	I
Phleum arenarium	I	I
Centaurium erythraea	I	I
Ranunculus bulbosus	II	
Cerastium glomeratum	II	
Anthyllis vulneraria	I	
Veronica chamaedrys	I	
Calliergon cuspidatum	I	
Bellis perennis	I	
Cirsium arvense	I	
Heracleum sphondylium	I	
Elymus farctus boreali-atlanti	I	
Cerastium fontanum	I	
Leontodon autumnalis	I	
Prunella vulgaris	I	

	A	D
Veronica arvensis	I	
Peltigera canina	I	
Barbula sp	I	
Achillea millefolium	I	
Aira praecox	I	
Anagallis arvensis	I	
Angelica sylvestris	I	
Campanula rotundifolia	I	
Centaurea nigra	I	
Crepis capillaris	I	
Dactylis glomerata	I	
Daucus carota	I	
Euphorbia paralias	I	
Euphrasia officinalis agg	I	
Lolium perenne	I	
Polygala vulgaris	I	
Rumex acetosella	I	
Viola riviniana	I	
Bryum capillare	I	
Rhytidiadelphus triquetrus	I	
Bryum sp	I	
Agrostis canina	I	
Agrostis capillaris	I	
Arctium minus ssp nemorosum	I	
Bromus hordeaceus hordeaceus	I	
Catapodium rigidum	I	
Galium palustre	I	
Galium saxatile	I	
Odontites vernus	I	
Poa annua	I	
Pteridium aquilinum	I	
Ranunculus acris	I	
Sonchus oleraceus	I	
Stellaria media	I	
Trifolium dubium	I	
Trifolium pratense	I	
Vicia sepium	I	
Brachythecium rutabulum	I	
Bryum pseudotriquetrum	I	
Plagiomnium rostratum	I	
Collema sp	I	
Sonchus sp.	I	
Plantago coronopus		I
Climacium dendroides		I
Plagiomnium undulatum		I
Mean number of species	13	15
Number of samples	33	5

a = Typical sub-community
d = Tortula ruraliformis sub-community

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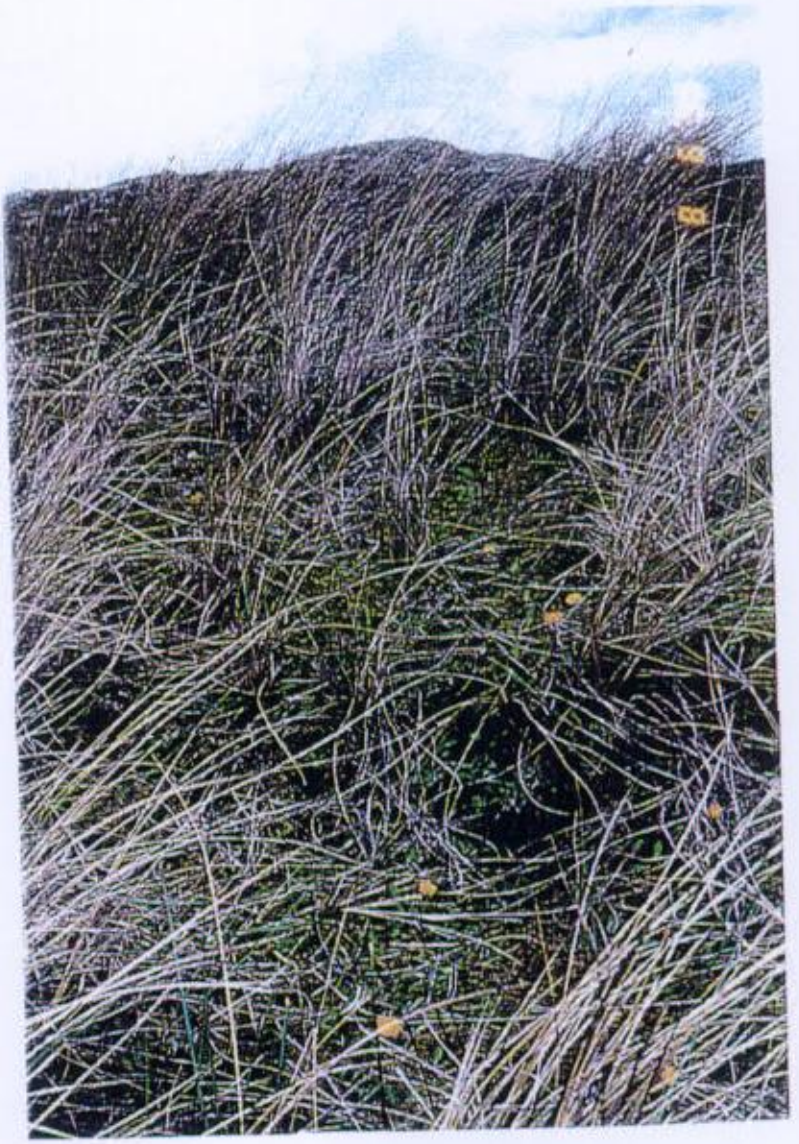

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SD8

Festuca rubra-Galium verum fixed dune grassland

Synonymy

Festuco-Galietum maritimi Braun-Blanquet et De Leeuw 1936 *p.p.*

Constant species

Festuca rubra, Galium verum, Trifolium repens, Plantago lanceolata, Lotus corniculatus

Species of note

Calystegia soldanella, Astragalus danicus, Botrychium lunaria, Draba incana, Ophioglossum vulgatum, Ophrys apifera, Myosotis ramossisima, Cuscuta epithymum, Spiranthes spiralis, Coeloglossum viride, Blackstonia perfoliata, Carlina vulgaris

Floristic composition and structure

The *Festuca rubra-Galium verum* grassland is the most frequently encountered and most extensive vegetation type noted at sites during the survey. This grassland type covers large area of sites, giving rise to extensive flat or gently undulating grasslands. The community is dominated by a core group of five species namely, *Festuca rubra, Galium verum, Trifolium repens, Plantago lanceolata* and *Lotus corniculatus*, which are present in more than 60% of the samples. In addition to these community constants, *Poa pratensis, Bellis perennis, Senecio jacobea* and the moss *Rhytidiadelphus squarrosus* occur in between 40 and 60% of the samples. Cover of vascular plant species averages c. 80% with the moss layer covering c. 40%. The herb height is generally not more than 15 cm due to constant grazing by cattle and/or sheep. The community contains a number of nationally rare plant species including *Draba incana* (at Sheskinmore), *Astragalus danicus* (at Inis Mor) and *Botrychium lunaria* (at Lunniagh). In this survey all of the sub-communities of SD8 outlined by the NVC were recognised and an additional four sub-communities were noted.

Sub-community a (The *Festuca rubra* sub-community). This is the typical sub-community, in which the vegetation tends to be dominated by *Festuca rubra* and thus is rather species-poor. Many of the samples in this vegetation type are either not grazed or grazed infrequently, which in turn leads to the dominance of *Festuca rubra*. The ungrazed nature of this sub-community is reflected in the higher mean sward height values of the samples.

Sub-community b (The *Luzula campestris* sub-community). In this sub-community, *Festuca rubra* is again usually the dominant species in the sward, however the vegetation is more open and grazed, than in sub-community a and thus is more species-rich. The sub-community is differentiated from the previous one by the increased frequency and cover of *Luzula campestris* and *Danthonia decumbens*.

Sub-community c (The *Tortula ruraliformis* sub-community). This sub-community is characterised by the increased abundance of plant species characteristic of open, sandy conditions, e.g. *Tortula ruraliformis, Homalothecium nitens, Sedum acre, Ammophila arenaria, Cerastium diffusum* and *Arenaria serpyllifolia*. It is noteworthy that bare sand is present in most of the samples of this sub-community, covering, on average 12% of the quadrat area.

Sub-community d (The *Bellis perennis-Ranunculus acris* sub-community). This sub-community and the following one, have a similar vegetation composition. They represent the wetter expressions of SD8 vegetation and this is reflected in the species composition. In this sub-community *Bellis perennis, Leontodon autumnalis, Calliergon cuspidatum, Agrostis stolonifera* and *Ranunculus acris* are much more common than in the first three sub-communities. *Carex flacca* and *Euphrasia officinalis* are also more frequent.

Sub-community e (The *Prunella vulgaris* sub-community). This sub-community is in many respects similar to the preceding sub-community, however *Prunella vulgaris* and *Linum Catharticum* tend to be more abundant here.

Sub-community f (The *Pteridium aquilinum* sub-community). *Pteridium aquilinum* occurs occasionally in areas of dune grassland and can sometimes attain closed-canopy dominance. In this vegetation type the cover of *Pteridium* is greater than 50% and the canopy reaches an average height of 62%, however the associated flora is quite species-rich. In addition to the high cover of *Pteridium*, the presence of plant

species such as *Cirsium vulgare*, *Heracleum sphondylium*, *Urtica dioica* and *Viola riviniana* serve to differentiate this sub-community from the others.

Sub-community g (The *Thymus praecox* sub-community). This species-rich type of *Festuca-Galium* grassland typically has a high cover of *Thymus praecox*. Additional species differentiating this sub-community include *Arabis hirsuta*, *Ditrichum flexicuale* and *Ctenidium molluscum*. These species indicate the presence of drier, more mineral-rich conditions.

Sub-community h (The *Lolium perenne* sub-community). In addition to the core group of SD8 species, the quadrats which make up this sub-community contain species typical of semi-improved grassland including *Lolium perenne*, *Cerastium fontanum*, *Achillea millefolium*, *Cynosurus cristatus* and *Dactylis glomerata*. Moss cover is low in this sub-community.

Sub-community i (The *Carex arenaria-Elymus farctus* sub-community). This, the most species-poor SD8 sub-community, is characterised by the presence of species typical of bare sand, most notably *Carex arenaria* and *Elymus farctus* with smaller amounts of *Tussilago farfara*, *Erodium cicutarium* and *Sonchus oleraceus*. The large mean cover of bare sand in this sub-community (21%) is noteworthy.

Habitat

The different sub-communities of SD8 recognised each occur in slightly different habitats. However, the associated substrate shows little differences between sub-communities usually consisting of a thin (<5 cm deep) organic layer, in which plants are rooted, overlying sands usually greater than 1 metre in depth. The driest expressions of this community are sub-communities c and i. These sub-communities occupy a number of dry, sandy habitats including the transition from sloping dune to flat dune grassland, around eroded areas within *Festuca-Galium* grassland and areas of *Festuca-Galium* grassland subject to inundation by blowing sand along the edges of eroding sand plains. Although, on balance, these sub-communities are firmly placed in the *Festuca-Galium* grassland, these two sub-communities frequently have much bare sand present and as a result they are transitional to species-poor dune vegetation types such as the *Ammophila arenaria* semi-fixed dune community (SD7). Sub-communities c and d are the wettest expressions of the *Festuca-Galium* community and both are transitional to wetter communities such as the *Carex nigra*

fen (SX3). The *Thymus* sub-community is usually located in exposed locations on shallow sandy substrates. Another feature of this sub-community is that it often occurs on a slope. which presumably also increases the drainage of the soil.

Despite the differences evident both between the sub-communities and their habitats their is little difference between the pH values of the associated soils, the means of which range from 8.0 to 8.5.

Distribution within the study area

Although the *Festuca-Galium* grassland was recorded in all of the sites visited, some of the sub-communities show distinctive patterns of distribution. Sub-communities a, c, e and g are fairly evenly distributed throughout the study area, however sub-communities h and I are largely restricted to Co. Mayo (especially Belmullet). b and f are more common in Co. Donegal and d is relatively rare in Co. Galway.

Affinities

Although the sub-communities of SD8 outlined in this study show close parallels with sub-communities of the SD8 outlined from Britain, there are some notable differences and a number of new sub-communities have been outlined. Based on the data collected in this study, the general lack of difference between sub-community d and e suggests that they could, in the future, be easily accommodated in one sub-community. *Festuca-Galium* grassland has a wide distribution throughout coastal areas of Ireland, being the main vegetation type in level areas of dune systems. One of the few published descriptions of this vegetation in Ireland is that by Ni Lamhna (1982) who described similar vegetation from Malahide island, Co. Dublin. She also noted and described areas of dune grassland dominated by *Pteridium aquilinum*, which is floristically close to the *Pteridium* sub-community outlined in this study.

Table SD8

Sub-community	A	B	C	D	E	F	G	H	I
Slope, degrees	5 (0-45)	1.7 (0-10)	11 (0-65)	3 (0-20)	6 (0-45)	2 (0-5)	7 (0-45)	0.5 (0-5)	2 (0-25)
Herb height, cm	26 (1-100)	15 (1-50)	18 (2-80)	10 (1-40)	12 (2-60)	62 (50-65)	15 (2-80)	15 (2-60)	13 (1-60)
Herb cover (%)	86 (20-100)	88 (50-100)	73 (20-100)	88 (40-100)	84 (30-100)	98 (90-100)	83 (40-100)	97 (90-100)	78 (40-100)
Bryophyte cover (%)	45 (2-100)	50 (4-95)	52 (2-95)	36 (1-96)	39 (1-100)	7 (5-10)	40 (1-95)	20 (1-70)	11 (5-90)
pH, units	8.3 (7.6-8.6)	8.0 (6.0-8.8)	8.3 (7.8-8.8)	-	8.2 (7.6-9.0)	7.3	8.3 (7.2-8.9)	-	8.5 (8.4-8.7)
Bare rock	0.5 (0-30)	0	0.1 (0-10)	0	0.8 (0-15)	0	1 (0-40)	0	0
Bare soil (including sand)	5 (0-30)	2 (0-30)	11 (0-60)	3 (0-40)	6 (0-90)	13 (0-50)	4 (0-65)	2.5 (0-10)	21 (0-80)
Festuca rubra	V	V	V	V	V	V	V	IV	V
Galium verum	V	V	V	IV	IV	II	V	IV	III
Trifolium repens	V	V	IV	V	V	IV	IV	V	V
Plantago lanceolata	IV	IV	IV	V	V	III	V	IV	IV
Lotus corniculatus	IV	V	IV	IV	IV	II	IV	IV	IV
Luzula campestris	II	V	II	III	III	II	III	I	
Koeleria macrantha	I	III	I	II	I		III		I
Tortula ruraliformis	I	I	IV		I		I	I	II
Homalothecium lutescens	II	II	IV	I	II	II	III	I	II
Sedum acre	I	I	III		I		I	I	I
Ammophila arenaria	III	II	III	I	II	II	III		I
Cerastium diffusum	I	I	II	I	I	II	III		I
Arenaria serpyllifolia	I	II	II		I	II			
Phleum arenarium			I				I		
Euphorbia peralis		I	I						
Honkenya peploides			I						I
Glaux maritima			I						
Matricaria maritima			I						I
Bellis perennis	II	III	III	IV	IV	IV	IV	III	II
Euphrasia officinalis agg	I	I	I	IV	III		III	I	I
Leontodon autumnalis	I	II	I	III	II		I	II	I
Calliergon cuspidatum	II	II	I	III	II		I	I	
Agrostis stolonifera	I	I	I	II	II	V	I	I	II
Ranunculus acris	I	I	I	II	I		I	I	I
Prunella vulgaris	I	I	I	III	IV	II	II	I	
Carex flacca	I	II	I	IV	IV		III	I	I
Linum catharticum	I	II	I	II	III		II	I	I
Holcus lanatus	II	II	I	II	II	II	II	II	I
Ptendium aquilinum	I	I				V	I		
Cirsium vulgare	I	I	I	I	I	III		I	I
Heracleum sphondylium	I	I	I			III			
Urtica dioica			I		I	III			
Veronica chamaedrys	I	I	I	I	I	III	I	I	
Viola riviniana	I	I	I	I	I	III	I		
Thymus praecox	II	III	II	II	III		V		I
Arabis hirsuta	I	I	I	I	I		II		I
Ditrichum flexicaule	I	I	I	I	I		II		
Ctenidium molluscum	I	I	I	I	I		II		
Carlina vulgaris	I		I				I		
Coeloglossum viride					I		I		
Avenula pubescens		I					I		
Lolium perenne	I	I	I	II	I		I	V	I
Cerastium fontanum	II	II	I	II	II	III	I	IV	I
Achillea millefolium	I	II	II	I	I		I	III	II
Agrostis capillaris	I	I		I	I	II	I	II	I
Cynosurus cristatus	I	I	I	II	I	II	II	II	
Dactylis glomerata	I	I	I	I	I	II	I	II	I
Stellaria media	I							I	
Rumex obtusifolius								I	
Plantago major				I				I	
Carex arenaria	III	III	III	III	III	III	III	III	IV
Elymus farctus	I	I	II		I		I		III
Tussilago farfara	I		I		I				I
Erodium cicutarium	I		I						I
Sonchus oleraceus									I
Poa pratensis	III	IV	II	IV	III	V	III	IV	III
Rhytidiadelphus squarrosus	III	IV	II	III	III	IV	III	III	I
Senecio jacobea	III	III	II	III	II	III	II	III	II
Campanula rotundifolia	II	II	I	II	I	II	III	I	I
Brachythecium albicans	II	II	I	I	I	II	I	I	I
Taraxacum officinale agg	II	II	II	II	II	IV	I	II	II
Veronica arvensis	I	II	I	I	I	II	I		
Pseudoscleropodium purum	I	I	I	I	I	II	I	I	
Cirsium arvense	I	I	I		I	II		I	I
Rhytidiadelphus triquetrus	I	I	I	I	I	II	I		
Daucus carota	I	I	I	I	I		I	I	I
Hypochoeris radicata	II	II	III	II	II		III	II	II
Ranunculus bulbosus	II	III	II	II	II		III	II	
Rumex acetosa	II	II	II	I	II		II	II	I

	A	B	C	D	E	F	G	H	I
Cerastium glomeratum	I	II	I	I	I		I	I	I
Polygala vulgaris	I	II	I	II	I		II		
Pilosella officinarum egg	I	I	I	II	II		II		
Hypnum cupressiforme	I	I	I	I	I		II		I
Peltigera canina	I	I	I	I	I		II	I	
Plantago coronopus	I	I	I	II			I		II
Anthyllis vulneraria	I	I	I	I	I		I		I
Sagina nodosa	I	I	I	I	I		I		I
Leontodon taraxacoides	I	I	I	I	I		I	I	I
Asperula cynanchica	I	I	I		I		I		I
Geranium molle	I	I	I						
Eurhynchium praelongum	I			I	I		I	I	I
Anthoxanthum odoratum	I	I		I	I	II	I	I	
Cerastium semidecandrum	I		I	I	I		I		I
Primula vulgaris	I	I	I	I			I		
Rhinanthus minor	I	I			I	II	I		
Trifolium pratense	I	I	I	I	I		I	I	I
Hylocomium splendens	I	I	I	I	I		I		
Barbula spp.	I		I	I	I		I		I
Agrostis canina	I	I	I	I	I		I	I	I
Armeria maritima	I	I	I		I		I		
Leucanthemum vulgare	I		I	I			I	I	
Medicago lupulina	I	I	I						
Plantago maritima	I	I	I	I	I		I		
Ranunculus repens	I	I		I	I	II			
Centaurea nigra	I	I	I	I	I	II	I		
Crepis capillaris	I	I	I						
Silene vulgaris maritima	I	I	I				I		
Lophocolea bidentata	I		I		I		I		I
Bryum spp.	I	I	I		I		I		I
Aira praecox	I	I	I		I		I		
Anagallis arvensis	I		I	I	I				
Centaurium erythrea	I	I	I	I	I		I		I
Climacium dendroides	I	I	I	I	I		I		I
Dicranum spp.	I	I	I	I			I		
Succisa pratensis	I	I		I	I		I		
Trifolium dubium	I	I	I				I		
Fissidens adianthoides	I		I		I		I	I	
Valerianella locusta	I	I	I		I		I		
Tortella tortuosa	I						I		
Briza media	I				I		I		
Desmazeria marina	I	I			I		I		I
Cochlearia officinalis	I	I					I		
Festuca ovina	I	I			I		I	I	
Leontodon hispidus	I		I	I	I		I		I
Poa annua	I	I	I				I		I
Sagina procumbens	I	I			I			I	I
Salix repens agg.	I			I	I		I		
Saxifraga tridactylites	I	I	I				I		
Danthonia decumbens	I	I	I		I		I	I	
Selaginella selaginoides	I	I	I	I	I		I		
Plagiomnium rostratum	I	I		I	I		I		
Pleurozium schreberi	I	I	I				I		
Thuidium tamariscinum	I		I		I	II	I	I	
Cerastium spp.	I			I	I		I		
Peltigera rufescens	I	I	I				I		
Cuscuta epithymum	I		I		I		I		
Collema spp.	I		I		I		I		
Nostoc spp.	I		I						
Anagallis tenella	I			I	I		I		
Arctium minus	I					II			
Arrhenatherum elatius	I	I							
Carex nigra	I			I	I		I		
Carex panicea	I				I		I		I
Cochlearia danica	I						I		
Dactylorhiza fuchsii	I				I				
Equisetum arvense	I	I	I	I	I		I		
Erophila verna	I						I		
Eryngium maritimum	I		I						I
Gentianella campestris	I			I	I				
Hydrocotyle vulgaris	I			I	I			I	
Jasione montana	I		I	I			I		
Potentilla anserina	I		I		I			I	
Ranunculus flammula	I				I				
Rosa pimpinellifolia	I		I		I		I		
Senecio vulgaris	I				I				I
Carex pilulifera	I						I		
Viola canina	I		I		I		I		
Viola tricolor	I		I	I			I		
Bryum capillare	I	I	I		I		I		
Frullania spp.	I	I							
Bryum pseudotriquetrum	I		I	I	I		I		
Dicranella heteromalla	I			I					
Dicranum scoparium	I	I							
Plagiomnium undulatum	I	I			I	II			
Cladonia spp.	I	I	I		I				
Dactylorhiza spp.		I					I		
Odontites vernus			I	I		II	I	I	I
Cladonia cf coccifera			I				I		
Dactylorhiza incarnata				I	I				
Carex pulicaris				I	I				

	A	B	C	D	E	F	G	H	I
Cardamine pratensis				I		II			
Juncus articulatus				I	I				I
Parnassia palustris				I	I				
Plagiomnium spp					I		I		I
Calluna vulgaris					I		I		
Juniperus communis					I		I		
Calystegia soldanella	I								I
Poa trivialis	I								
Aira caryophyllea	I								
Ophrys apifera	I								
Antennaria dioica	I								
Botrychium lunaria	I								
Hyacinthoides nonscripta	I								
Glechoma hederacea	I								
Molinia caerulea	I								
Orchis mascula	I								
Polypodium australe	I								
Vicia sepium	I								
Campylium stellatum	I								
Mnium hornum	I								
Rhytidiadelphus loreus	I								
Polytrichum spp	I								
Sesleria albicans		I							
Drepanocladus revolvens		I							
Polytrichum juniperinum		I							
Cirsium dissectum		I							
Sherardia arvensis			I						
Bromus hordaceus			I						
Myosotis ramosissima			I						
Veronica montana			I						
Sonchus spp			I						
Eleocharis palustris				I					
Listera ovata				I					
Carex demissa					I				
Ophioglossum vulgatum					I				
Vicia cracca					I				
Empetrum nigrum					I				
Equisetum palustre					I				
Pinguicula vulgaris					I				
Polygala serpyllifolia					I				
Spiranthes spiralis					I				
Veronica serpyllifolia					I				
Bryum pallens					I				
Cladonia tenuis					I				
Acer pseudoplatanus						I			
Cardamine hirsuta						I			
Conopodium majus						I			
Silene dioica						I			
Veronica montana						I			
Homalothecium sericeum							I		
Blackstonia perfoliata							I		
Cirsium vulgare							I		
Draba incana							I		
Erica tetralix							I		
Fumana muralis							I		
Teucrium scorodonia							I		
Cladonia furcata							I		
Ramalina siliquosa							I		
Peltigera spp							I		
Carex distans								I	
Catapodium rigidum									I
Eurhynchium spp									I
Mean number of species	17	21	17	21	21	19	22	15	12
Number of samples	101	43	105	28	57	4	60	13	24

a = typical sub-community
b = Luzula campestris sub-community
c = Tortula ruraliformis sub-community
d = Ranunculus perennis-Bellis perennis sub-community
e = Prunella vulgaris sub-community
f = Pteridium aquilinum sub-community
g = Thymus praecox sub-community
h = Lolium perenne sub-community
i = Carex arenaria-Elymus farctus sub-community

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96926.14

96920.17

96502.34

96903.13

96920.18

96914.05

SD9

Ammophila arenaria-Arrhenatherum elatius dune grassland

Synonymy

Dune grassland Gimingham 1964

Constant species

Rosa pimpinellifolia, Galium verum, Plantago lanceolata, Trifolium repens, Festuca rubra, Ranunculus bulbosus, Rhytidiadelphus squarrosus, Senecio jacobea

Floristic composition and structure

This community is a little-grazed sand-dune community on gently sloping terrain which is characterised by the presence of the low, thorny shrub, *Rosa pimpinellifolia*. The species generally attains a height of between 20 and 30 cm and, on average covers from 30 to 40% of the quadrat. Somewhat surprisingly, the associated flora is quite species-rich, averaging 21 species per quadrat with grassland species such as *Galium verum, Festuca rubra, Plantago lanceolata, Trifolium repens, Senecio jacobea* and *Ranunculus bulbosus* well represented. True sand-dune species such as *Ammophila arenaria* and *Carex arenaria* are also present, however they rarely attain dominance. The bryophyte layer is well developed in this community being mostly dominated by *Rhytidiadelphus squarrosus*, however *Rhytidiadelphus triquetrus* and *Homalothecium lutescens* can be locally abundant.

Habitat

This community occurs on the landward side of stabilised, gently sloping sand-dunes. It is generally located well back from the *Ammophila*-dominated foredune areas and the floristic composition of the community suggests that it occupies the transition from semi-fixed *Ammophila* fore-dune (SD7) to *Festuca-Galium* grassland (SD8). The associated substrate consists of sand with little more than a thin organic layer of

soil. The vegetation type thrives, and can cover extensive areas, in sites where there is little grazing.

Distribution within the study area

This community was only recorded from sites in counties Donegal and Sligo, where it often covers extensive areas. *Rosa pimpinellifolia* appears to be much rarer generally in the coastal areas of Galway and Mayo, however the underlying reasons for this are not clear.

Affinities

Despite the absence of one of the community character species and sub-community character species, on balance, this vegetation is best allocated to the *Geranium sanguineum* sub-community of the *Ammophila arenaria-Arrhenatherum elatius* dune grassland. In comparison to Britain, *Arrhenatherum elatius* appears to be generally much less frequent in coastal vegetation types in the north-west of Ireland.

Table SD9

Sample number	20	71	91	92	94	253	256	292	362	448	468	477	539	560	676	
Sub-community	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
Slope, degrees	15	2	10	10	4	0	3	5	0	2	20	50	10	10	0	
Aspect, degrees	220	180	240	90	110	0	110	280	0	0	280	130	320	300	0	
Shrub height, metres	0.30	0.20	0.20	0.30	0.12	0.20	0.20	0.15	0.10	0.30	0.12	0.15	0.60	0.20	0.20	
Herb height, centimetres	30	15	30	15	10	60	10	45	20	30	80	45	7	20	80	
Shrub cover (%)	50	45	25	30	65	10	55	5	20	60	50	45	65	40	60	
Herb cover (%)	80	35	80	90	95	90	70	90	100	70	60	70	55	40	50	
Moss cover (%)	40	85	55	50	20	30	50	60	30	10	45	30	50	30	40	
Bare soil (including sand)	2	0	0	0	0	5	0	0	0	0	0	5	0	0	0	
																Constancy
Rosa pimpinellifolia	7	7	5	7	3	4	7	3	9	8	8	7	8	7	8	V
Galium verum	4	3	3	3		4	3	4	3	4	3	4	4	3	4	V
Plantago lanceolata	3	1	2	4	3	2	2	3	3	4	3	3	3	3		V
Trifolium repens	3	2	3	4	3	4		3	3	3	3	3	3	3	4	V
Festuca rubra	7	4	7	4	8	5		7	7	4	7		4	5	6	V
Ranunculus bulbosus	2	4	3	4	4	3		1	7	3			2		2	IV
Rhytidiadelphus squarrosus	1	5	7	4		3		4	4	3			7	4	5	IV
Senecio jacobaea	2			2	3	3				4	3	3	3	3	3	IV
Ammophila arenaria			2		6	7	2	5			4	4		5	5	III
Luzula campestris	1	2	3		3			2	4	2	2		3			III
Holcus lanatus		1		3	3			2		4		2	2		1	III
Lotus corniculatus	3	3					2	3	2	3					1	III
Thymus praecox arcticus			6					4	3		4	4	3		3	III
Carex arenaria	4					2			5	3	2		2			II
Cerastium fontanum		1							4	3		2	2		3	II
Euphrasia officinalis agg					2	2				3		2	1	3		II
Linum catharticum							3	1		1	3	1		1		II
Poa pratensis	5		4	3	3					5					3	II
Pteridium aquilinum		3	5	3		3		3				5				II
Rhytidiadelphus triquetrus		7		7	5					2		4		7		II
Hypochoeris radicata	3	1								5	3	3				II
Polygala vulgaris			2		2			2			3	3				II
Rumex acetosa									6	3	2	3	2			II
Veronica chamaedrys									3	3			3	4	3	II
Viola riviniana		2		4			3	1		3						II
Calliergon cuspidatum		2					7						5	4	4	II
Homalothecium lutescens	4					7				3	6	5				II
Taraxacum officinale agg	2					3	1				1				3	II
Anthyllis vulneraria						3		2			2	3				II
Carex flacca				3	2		4	1								II
Heracleum sphondylium						2					2	2	1			II
Prunella vulgaris				2							3			4	2	II
Trifolium pratense			2	2						2					2	II
Bellis perennis			4						3				3			I
Succisa pratensis						4	7						5			I
Brachythecium albicans		2				3							2			I
Achillea millefolium	1									2						I
Anacamptis pyramidalis						2									3	I
Campanula rotundifolia											3	3				I
Cerastium diffusum	2					2										I
Cynosurus cristatus				2											3	I
Eupatorium cannabinum						2	2									I
Avenula pubescens			4	8												I
Lolium perenne										2					3	I
Ranunculus acris				3										1		I
Rhinanthus minor								1		5						I
Salix repens agg			7		8											I
Veronica montana				3	2											I
Hylocomium splendens		2												3		I
Pseudoscleropodium purum								1							5	I
Thuidium tamariscinum			1						4							I
Lophocolea bidentata						3							1			I
Elymus repens									3							I
Agrostis stolonifera							3									I
Agrostis capillaris						5										I
Aira praecox									3							I
Carex pilulifera		2														I
Centaurea nigra							3									I
Centaurium erythraea												2				I
Cerastium glomeratum						3										I
Dactylis glomerata						2										I
Dactylorhiza fuchsii				1												I
Daucus carota										2						I
Hyacinthoides non-scripta													2			I
Equisetum arvense													3			I
Galium saxatile				2												I
Koeleria macrantha			3													I
Mentha aquatica							2									I
Picris echioides agg											2					I
Plantago maritima							2									I
Potentilla anserina							2									I
Prunus spinosa	2															I
Teucrium scorodonia														2		I
Valerianella locusta	1															I
Veronica arvensis						2										I
Brachythecium rutabulum											3					I
Plagiomnium undulatum						3										I
Pleurozium schreberi			3													I
Tortula ruralis ssp *ruraliformis*	6															I
Cladonia furcata														3		I
Barbula sp											4					I
Dactylorhiza sp								3								I
Number of species	20	20	20	22	16	28	17	22	18	27	23	21	24	18	22	Mean = 21

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SD10

Carex arenaria dune community

Synonymy

Carex arenaria community Watt 1936, 1937

Constant species

Carex arenaria, Festuca rubra, Lotus corniculatus

Floristic composition and structure

The *Carex arenaria* community is a low-growing vegetation type which can have either an open or closed sward. Bare sand is always present, and can cover up to 90% of the quadrat. In addition to *C. arenaria, Festuca rubra* and *Lotus corniculatus* are present in more than 60% of the quadrats while *Elymus farctus, Cerastium diffusum* and *Plantago lanceolata* occur in between 40 and 60% of the samples. A bryophyte layer is generally absent, however *Tortula ruraliformis* can be locally common.

Habitat

This community is largely restricted to level sandy areas just behind fore-dunes where there has been a recent erosion event. The vegetation is usually surrounded by, and grades into, areas of *Festuca-Galium* grassland.

Distribution within the study area

Although *Carex arenaria* was recorded in almost all of the sites visited during this survey, this distinctive vegetation type is surprisingly rare, being recorded from a mere 4 sites, most of which are in Co. Mayo. In addition to being recorded from 3 sites in Co. Mayo (Belmullet, Kinrovar and Lough Doo) the community was recorded from Bunduff and Trawlua in Co. Sligo.

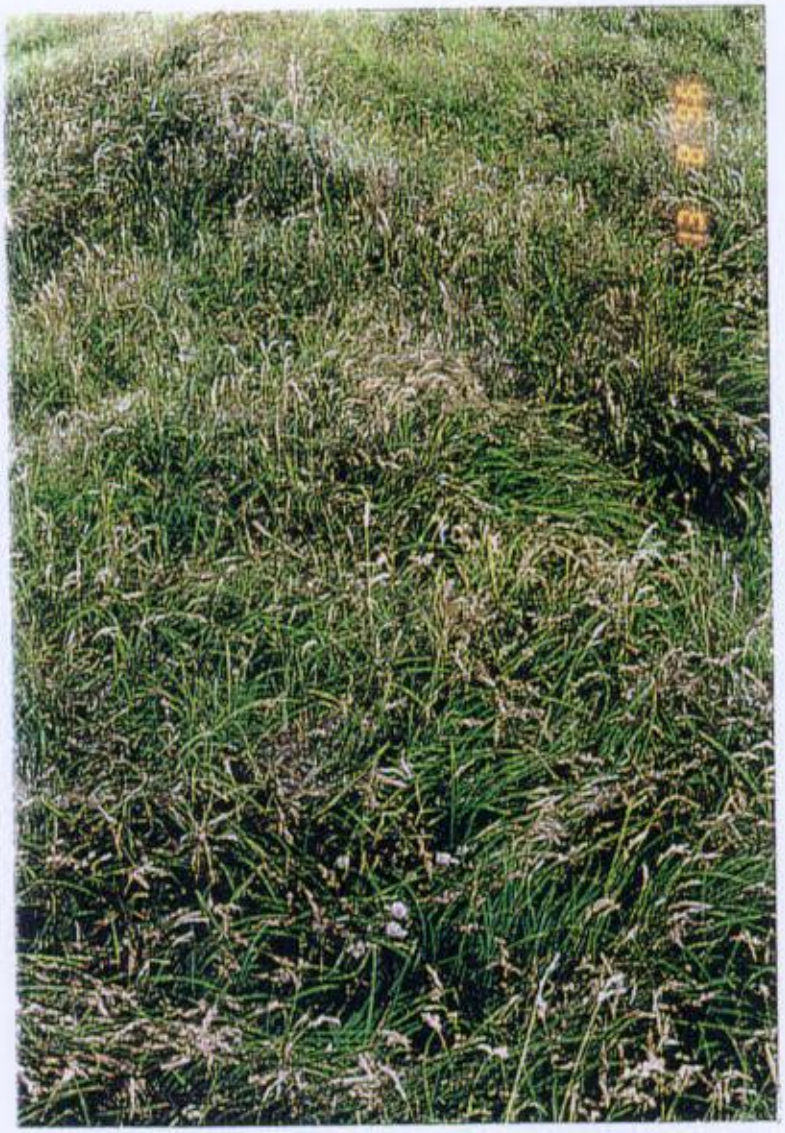
Affinities

This vegetation agrees well with the *Festuca rubra* sub-community of the *Carex arenaria* dune community outlined by the NVC.

Table SD10

Sample number	647	587	1029	917	648	866	956	953	
Sub-community	a	a	a	a	a	a	a	a	
Slope, degrees	0	0	0	0	0	0	0	40	
Aspect, degrees	0	0	0	0	0	0	0	170	
Herb height, centimetres	5	15	15	25	50	20	25	20	
Herb cover (%)	20	50	60	90	35	90	75	35	
Moss cover (%)	0	0	0	1	0	15	10	50	
Bare rock (talus,outcrops,shin	0	0	0	0	0	0	30	0	
Bare soil (including sand)	95	50	40	25	80	20	30	15	
									Constancy
Carex arenaria	5	7	7	9	4	9	7	5	V
Festuca rubra				5	2	4	3	3	IV
Lotus corniculatus			4	1	1	3	3	2	IV
Elymus farctus	3					3	4	3	III
Cerastium diffusum		5	3		4			3	III
Plantago lanceolata			2	1		2	2		III
Agrostis stolonifera			4	1					II
Erodium cicutarium		5	1						II
Eryngium maritimum						1	3		II
Hypochoeris radicata							4	4	II
Leontodon autumnalis						2	3		II
Potentilla anserina			4		3				II
Sedum acre							3	4	II
Senecio jacobaea					3			2	II
Senecio vulgaris					2	1			II
Trifolium repens				3		4			II
Tortula ruralis ssp ruraliform							4	7	II
Achillea millefolium				2					I
Elymus repens	2								I
Agrostis capillaris					4				I
Aira praecox								3	I
Bellis perennis			3						I
Desmazeria marina								2	I
Cirsium arvense					5				I
Galium verum					2				I
Geranium molle		1							I
Phleum arenarium								7	I
Plantago coronopus							3		I
Poa pratensis				2					I
Sonchus arvensis						1			I
Veronica arvensis								1	I
Brachythecium albicans						5			I
Homalothecium lutescens							1		I
Pseudoscleropodium purum				1					I
Barbula sp								3	I
Bryum sp						2			I
Taraxacum officinale agg							1		I
Collema sp								3	I
Number of species	3	4	8	9	10	12	13	15	Mean = 9

a = Carex arenaria sub-community



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SD15

Salix repens-Calliergon cuspidatum dune-slack community

Floristic composition and structure

This community is dominated by the low-growing shrub, *Salix repens* and is accompanied by a luxuriant growth of the wetland moss *Calliergon cuspidatum*. Associated plant species are rather plentiful, but sparse.

Habitat

The vegetation occurs on damp sand, in hollows between two large *Ammophila* foredunes.

Distribution within the study area

SD15 was only recorded from only one site during this study, namely, Sheskinmore, Co. Donegal.

Affinities

Although there is clearly a close relationship between this community and the *Potentilla anserina* sub-community of the *Carex nigra* fen (SX3a) the important character species *Carex nigra*, *Hydrocotyle vulgaris* and *Potentilla anserina* are absent. Althought the dominant species are clearly *Salix* and *Calliergon*, the vegetation shows little similarity to any of the sub-communities of the SD15 outlined by the NVC. It is difficult to assign any significance to this community as it is defined by only one quadrat. The community may be an artefact of sampling and further work is needed to clarify its status.

Table SD15

Sample number	473
Slope, degrees	10
Shrub height, metres	0.3
Herb height, centimetres	5
Shrub cover (%)	85
Herb cover (%)	10
Moss cover (%)	50
Bare soil (including sand)	10
Open water (%)	0
Salix repens agg.	9
Calliergon cuspidatum	7
Ranunculus flammula	3
Euphrasia officinalis agg	3
Linum catharticum	3
Prunella vulgaris	2
Poa pratensis	3
Trifolium repens	3
Barbula sp	3
Agrostis stolonifera	2
Ammophila arenaria	2
Carex arenaria	2
Galium verum	1
Lotus corniculatus	1
Luzula campestris	1
Myosotis laxa caespitosa	1
Taraxacum officinale agg.	1
Number of species	17

SD18

Hippophae rhamnoides scrub

Synonymy

Hippophae communities Pearson and Rogers 1962

Constant species

Hippophae rhamnoides, Festuca rubra, Daucus carota

Floristic composition and structure

The *Hippophae rhamnoides* scrub is characterised by the high cover of the invasive and thorny shrub *Hippophae*, accompanied by a rather sparse understorey of sand-dune grassland species. The most prominent of the associated species are *Festuca rubra, Daucus carota, Ammophila arenaria, Cerastium diffusum* and *Elymus farctus*. *Hippophae* cover is high, averaging c. 80% of the quadrat area and the species can attain a height of 2 metres. Bryophyte cover is very low in this community.

Habitat

This scrub community is located in stabilised areas of sand dunes. *Hippophae* has been deliberately introduced in Ireland and is spreading at present due to the fact that it is often planted in an effort to stop sand-dune erosion (Webb *et al.*, 1996).

Distribution within the study area

The *Hippophae* community was only noted at two sites in Co. Donegal (Melmore and Clooney), where it is likely that the species was planted recently to prevent erosion. In some areas of Britain and Ireland the uncontrolled spread of *Hippophae* scrub has lead to the loss of large areas of *Ammophila*-dominated and *Festuca-Galium*-dominated vegetation types, however at the two sites in Co. Donegal *Hippophae* scrub covers small areas.

Affinities

This vegetation agrees well with the *Festuca rubra* sub-community (a) of the *Hippophae rhamnoides* scrub outlined by the NVC.

Table SD18a

Sample number	14	379	
Slope, degrees	45	35	
Aspect, degrees	245	320	
Shrub height, metres	2	1.2	
Herb height, centimetres	30	70	
Shrub cover (%)	90	70	
Herb cover (%)	40	40	
Moss cover (%)	5	0	
Bare rock (talus,outcrops	10	0	
Bare soil (including sand)	3	30	
			Constancy
Hippophae rhamnoides	10	7	V
Festuca rubra	5	4	V
Daucus carota	3	2	V
Ammophila arenaria	3		III
Hypochoeris radicata	3		III
Lotus corniculatus	3		III
Plantago lanceolata	3		III
Tortula ruralis ssp ruraliform	3		III
Eryngium maritimum	2		III
Taraxacum officinale agg.	2		III
Galium verum	2		III
Festuca pratensis	1		III
Senecio jacobaea	1		III
Sonchus oleraceus	1		III
Cirsium dissectum	1		III
Elymus farctus		5	III
Cerastium diffusum		4	III
Cirsium vulgare		2	III
Holcus lanatus		4	III
Senecio vulgaris		3	III
Number of species	15	8	Mean = 12

SDX1

Catabrosa aquatica community

Constant species

Catabrosa aquatica, Juncus articulatus, Triglochin palustre, Agrostis stolonifera

Floristic composition and structure

This simple community is characterised by the presence of *Catabrosa aquatica*, accompanied by a rather sparse range of species, the most common of which are *Juncus articulatus, Triglochin palustre* and *Agrostis stolonifera*. The mixture of freshwater marsh and sand-dune/saltmarsh plants here is of particular note. Herb cover is low, covering on average 30% of the quadrats.

Habitat

This community occurs on areas of damp bare sand in front of sand-dunes where there is some influence from flowing freshwater.

Distribution within the study area

The community was recorded from only two widely separated communities during this study namely Sheskinmore, Co. Donegal and Dooaghtry, Co. Mayo.

Affinities

This vegetation is a poor fit for any of the communities outlined in the NVC. The table of quadrat data is quite heterogenous and further research is needed to clarify the status of this community.

Table SDX1

Sample number	460	461	929	
Slope, degrees	0	0	10	
Aspect, degrees	0	0	270	
Herb height, centimetres	15	3	2	
Herb cover (%)	35	30	25	
Moss cover (%)	0	0	2	
Bare rock (talus,outcrops,shin	0	0	10	
Bare soil (including sand)	60	70	60	
				Constancy
Catabrosa aquatica	4	3	3	V
Juncus articulatus	5	5		IV
Triglochin palustre	4	4		IV
Agrostis stolonifera		3	2	IV
Atriplex prostrata	3			II
Juncus bufonius	3			II
Tussilago farfara	3			II
Barbula sp			5	II
Glaux maritima			4	II
Ammophila arenaria			1	II
Carex arenaria			2	II
Cochlearia officinalis			2	II
Koeleria macrantha			1	II
Nasturtium officinale			1	II
Matricaria maritima			3	II
Number of species per sample	6	4	10	Mean = 7

MESOTROPHIC GRASSLAND COMMUNITIES

MG1

Arrhenatherum elatius grassland

Synonymy

Arrhenatheretum elatioris Braun-Blanquet 1919; Centaureo-Arrhenatheretum O'Sullivan 1965

Constant species

Arrhenatherum elatius, Heracleum sphondylium, Agrostis stolonifera, Dactylis glomerata, Festuca rubra, Rhinanthus minor, Trifolium pratense, Trifolium repens

Species of note

Centaurea scabiosa

Floristic composition and structure

The species which define this community are the following: *Arrhenatherum elatius, Heracleum sphondylium, Agrostis stolonifera, Dactylis glomerata, Festuca rubra, Rhinanthus minor, Trifolium pratense* and *Trifolium repens*. From this species list, it is clear that the community is a relatively ungrazed community, which can become quite rank and tall. *Heracleum sphondylium* immediately identifies the community from a distance. *Centaurea scabiosa* was recorded in one quadrat within this vegetation type.

Herb cover is almost complete in all of the quadrats. Bryophyte species are absent from all but one of the sampled quadrats.

Habitat

This community is now becoming confined to road verges in much of Ireland, as every patch of available land becomes progressively more intensively managed and grazed. The community occurs on circumneutral soils in lowland situations and the pH from one sample in this community was 8.2.

Distribution within the study area

This community was found exclusively in Cos Galway and Mayo during the survey. The sites in which the community was recorded are as follows; the Mullet Peninsula (Co. Mayo) and Mweenish and Finnish Islands (Co. Galway). It is not surprising that this community is found on abandoned islands as the community is essentially a rank, ungrazed grassland. The sampled quadrat in the Mullet Peninsula was in an ungrazed field.

Affinities

This community is clearly ascribable to the Arrhenatheretum elatioris Braun-Blanquet 1919 and similarly to the Centaureo-Arrhenatheretum O'Sullivan 1965. Both of these communities are synonymous with *Arrhenatherum elatius* grassland (MG1). The most appropriate subommunity of MG1 for accommodation of the sampled data is the *Centaurea nigra* sub-community (MG1e), although similarities also exist with the *Festuca rubra* sub-community (*Centaurea scabiosa* variant).

Table MG1

Sample number	763	1381	1377	1405	1393	
Herb cover (%)	100	100	100	95	98	
Herb height, centimetres	80	40	4	4	30	
Moss cover (%)	0	0	0	0	50	
Bare soil (including sand)	0	0	0	10	0	
Slope, degrees	0	0	0	0	5	
pH	–	–	–	8.2	–	
						Constancy
Arrhenatherum elatius	4	4	3	1	4	V
Heracleum sphondylium	7	4	3	3	4	V
Agrostis stolonifera	6	3	2	3		IV
Dactylis glomerata	3	3	2	3		IV
Festuca rubra		7	3	4	5	IV
Rhinanthus minor	4	2	3		3	IV
Trifolium pratense	5	5	3		3	IV
Trifolium repens		4	3	4	3	IV
Cerastium fontanum	3	3			3	III
Holcus lanatus	3	4	8			III
Lotus corniculatus		3		3	4	III
Odontites vernus		3	3		3	III
Plantago lanceolata			3	3	4	III
Achillea millefolium		4		7		II
Potentilla anserina		2	7			II
Bellis perennis				3	2	II
Leucanthemum vulgare				2	3	II
Galium verum				3	7	II
Rumex acetosa				2	2	II
Taraxacum officinale agg				3	3	II
Daucus carota	2	2				II
Equisetum arvense	3	3				II
Euphrasia officinalis agg		2			3	II
Lolium perenne	5		3			II
Poa pratensis	3			2		II
Bromus hordeaceus	4					I
Centaurea nigra	3					I
Stellaria media	3					I
Cirsium vulgare				1		I
Geranium molle				1		I
Agrostis capillaris				2		I
Polygonum oxyspermum				1		I
Senecio vulgaris				1		I
Anacamptis pyramidalis					3	I
Carex arenaria					3	I
Carex otrubae					1	I
Centaurea scabiosa					5	I
Luzula campestris					3	I
Medicago lupulina					3	I
Prunella vulgaris					2	I
Ranunculus acris					3	I
Senecio jacobaea					3	I
Succisa pratensis					2	I
Veronica chamaedrys					2	I
Rhytidiadelphus squarrosus					8	I
Number of species	15	17	13	20	28	Mean = 19

MG5

Cynosurus cristatus-Centaurea nigra grassland

Synonymy

Centaureo-Cynosuretum cristati Braun-Blanquet & Tuxen 1952

Constant species

Trifolium repens, Plantago lanceolata, Festuca rubra, Holcus lanatus, Trifolium pratense, Cynosurus cristatus

Species of note

Listera ovata, Coeloglossum viride, Ophioglossum vulgatum, Orobanche minor

Floristic composition and structure

96 quadrats were recorded from this community throughout the study area and all of the sub-communities identified have high constancies of the following species: *Trifolium repens, Plantago lanceolata, Festuca rubra, Holcus lanatus, Trifolium pratense* and *Cynosurus cristatus*. 5 sub-communities are recognised from the sampled data, 3 of which (a, b, and c) are described in the NVC. In all cases, the mean herb cover in the sub-communities is in excess of 90%, while moss cover does not exceed 30% (with the exception of sub-community a). A full list of the quadrat numbers assigned to each sub-community is given at the end of Table MG5. Species which have a constancy of I in each of the sub-communities are also listed at the end of Table MG5.

MG5a (*Lolium perenne* sub-community) is composed of 11 samples, with an average of 21 species per sample. This community is analagous to the *Lathyrus pratensis* sub-community described in the NVC, but *Lathyrus pratensis* was not well-represented in the vegetation encountered during the survey. Species of note here include *Lolium perenne, Cerastium fontanum, Senecio jacobea* and *Bromus hordeaceus*. This is a community of calcareous pastures that may have been re-

seeded in the past. The growth of grass here is often poor and this may result in some bare ground. The average pH from soil samples in this community is 7.35.

MG5b (*Galium verum* sub-community) is composed of 20 samples, with an average of 21 species per sample. This community is analagous to the MG5b described in the NVC, but *Lotus corniculatus* and *Leontodon autumnalis* have high constancies in the sampled quadrats. *Carex flacca, Dactylis glomerata* and *Taraxacum officinale* agg. also have reasonable constancy in this sub-community. The average pH from soil samples in this community is 8.0.

MG5c (*Prunella vulgaris* sub-community) is composed of 24 samples, with an average of 27 species per sample. This community is analagous to the *Danthonia decumbens* sub-community described in the NVC. However *Prunella vulgaris* is a better character species for the sampled vegetation, as it attains a constancy of V here. Other species of note include *Carex flacca, Agrostis capillaris, Succisa pratensis, Danthonia decumbens, Pseudoscleropodium purum, Thymus praecox* and *Listera ovata*. Species characteristic of calcicolous grassands are more prevalent in this sub-community than in MG5a.

MG5d (*Holcus lanatus/Trifolium pratense* sub-community) is composed of 35 samples, with an average of 21 species per sample. The community constant species are particularly well-represented in this sub-community and *Carex flacca* still attains high constancy here. *Rhinanthus minor, Hydroctyle vulgaris* and *Odontites verna* are marginally diagnostic for this sub-community. This sub-community is slightly wetter than the previous sub-communities and the high cover/abundances of both *Trifolium pratense* and *Holcus lanatus* is a useful diagnostic tool. The average pH from soil samples in this community is 7.2.

MG5e (*Carex nigra* sub-community) is composed of 6 samples, with an average of 21 species per sample. This sub-community has a relatively high constancy of *Carex nigra*, but is still sufficiently mesotrophic to merit inclusion in the MG5. Both MG5d and MG5e have strong floristic links with MG11d and SX3.

Habitat

This is a dicotyledon-rich grassland of variable appearance, typical of traditional, grazed hay meadows on circumneutral brown soils throughout Ireland and Britain. This habitat is becoming increasingly rare due to increased agricultural improvement.

Distribution within the study area

This community was recorded in a variety of locations throughout the study area. The main sites where this community was sampled were the Mullet Peninsula (Co. Mayo), Lettermacaward/Clooney, Sheskinmore (both in Co. Donegal) and Bunduff/Trawlua (Co. Sligo). This community was also recorded in Lunniagh, Keadue, Melmore/Tranarossan, Iniskea North, Dooaghtry, Lough Doo, Keel Lough, Omey Island, Mannin Bay, Dogs Bay, Mason Island, Mweenish Island, Finnish Island, Inis Mór and Inis Oirr.

Affinities

This community is clearly ascribable to the Centaureo-Cynosuretum cristati Braun-Blanquet & Tuxen 1952 and to the *Cynosurus cristatus-Centaurea nigra* grassland (MG5). O'Sullivan (1965) has completed detailed phytosociological analysis of the status of this community in Ireland.

Table MG5

	a	b	c	d	e	5
Mean herb cover	91	97	95	96	98	
Mean herb height	24	22	15	24	33	
Mean moss cover	55	23	26	23	15	
Slope (range)	0-5	0-30	0-30	0-40	0-60	
Mean pH (number of samples)	7.35 (2)	8.0 (4)	5.5 (1)	7.2 (3)	-	
Trifolium repens	IV	IV	V	V	V	V
Plantago lanceolata	IV	V	V	V	V	V
Festuca rubra	III	V	V	V	V	V
Holcus lanatus	V	IV	IV	V	IV	IV
Trifolium pratense	IV	IV	IV	V	III	IV
Cynosurus cristatus	IV	III	IV	III	IV	IV
Cerastium fontanum	V	IV	III	III	II	III
Senecio jacobaea	IV	II	I	II	III	II
Lolium perenne	IV	II	I	I		II
Bromus hordeaceus	II			I		I
Lotus corniculatus	III	IV	IV	III	I	III
Leontodon autumnalis	I	IV	II	III	II	III
Galium verum	II	IV	II	I	I	II
Prunella vulgaris	II	II	V	IV	I	III
Carex flacca	I	III	IV	II	I	III
Agrostis capillaris	II	II	IV	II		II
Succisa pratensis		I	III	I	II	II
Danthonia decumbens			III	I		I
Pseudoscleropodium purum	I	I	III	I		I
Thymus praecox arcticus	I	I	III	I	I	I
Listera ovata			II			I
Carex nigra			I	II	III	I
Bellis perennis	III	III	III	II	II	III
Centaurea nigra	III	III	III	II	III	III
Luzula campestris	I	III	III	II		III
Euphrasia officinalis agg	II	II	III	II	II	II
Poa pratensis	III	III	II	III	II	II
Rhytidiadelphus squarrosus	III	II	III	II	II	II
Achillea millefolium	I	III	II	II		II
Anthoxanthum odoratum	III	I	III	II	II	II
Dactylis glomerata	III	III	II	I	II	II
Taraxacum officinale agg	I	III	II	II	III	II
Ranunculus bulbosus	II	II	II	II	I	II
Hypochoeris radicata	II	I	II	II	II	II
Ranunculus acris	I	I	I	III	I	II
Rhinanthus minor	III	I	I	II	III	II
Rumex acetosa	II	II	I	II	II	II
Carex arenaria	I	II	II	II	I	II
Agrostis stolonifera	II	I	I	II		II
Leucanthemum vulgare	II	II	II	I	I	II
Koeleria macrantha	I	II	II	I		I
Calliergon cuspidatum	I	I	II	I	I	I
Hydrocotyle vulgaris		I	I	II	I	I
Linum catharticum	I	I	II	I	I	I

Table MG5 (cont'd)

	a	b	c	d	e	5
Veronica chamaedrys	II	I	I	I	I	I
Brachythecium albicans	I	I	I	I	II	I
Brachythecium rutabulum	I	I	I	II	I	I
Agrostis canina	I	I	II	I	I	I
Plantago maritima	I	I	II	I	II	I
Potentilla erecta	I	I	II	I		I
Leontodon taraxacoides		I	II	I		I
Odontites vernus	I	I		II		I
Ranunculus repens	I	I	I	I		I
Campanula rotundifolia		I	II	I	I	I
Carex pilulifera	I	I	II	I		I
Vicia cracca	I	I	I	I		I
Daucus carota	I	I	I	I	I	I
Heracleum sphondylium	I	I	I	I	II	I
Salix repens agg.		I	I	I		I
Anagallis tenella	I		II	I		I
Centaurium erythraea		I	II	I		I
Cirsium vulgare		I	I	I		I
Juncus articulatus			II	I	I	I
Primula vulgaris		I	I	I	II	I
Viola riviniana		I	II	I	I	I
Homalothecium lutescens	I	I	I	I	II	I
Carex panicea		I	II	I	I	I
Carex pulicaris	I	I	II	I		I
Pilosella officinarum agg	I	I	II	I		I
Polygala vulgaris	I	I	I	I	I	I
Potentilla anserina	I	I	I	I		I
Eurhynchium praelongum		I	I	I	II	I
Anthyllis vulneraria	I		II	I		I
Cirsium arvense	I		I	I		I
Equisetum arvense	I	I	I	I	I	I
Plantago coronopus		I	I	I		I
Hypnum cupressiforme	I	I	I	I	I	I
Lophocolea bidentata		I	I	I	I	I
Cerastium glomeratum		I	I	I		I
Equisetum palustre	I		I	I		I
Parnassia palustris			I	I		I
Pteridium aquilinum		I	I			I
Sagina procumbens			I	I		I
Trifolium dubium	II	I	I	I		I
Ctenidium molluscum			II	I		I
Hylocomium splendens		I	II	I		I
Rhytidiadelphus triquetrus	I	I	I	I	I	I
Angelica sylvestris			I	I	I	I
Arrhenatherum elatius	I	I	I	I		I
Briza media		I	I	I		I
Calluna vulgaris	I		I	I		I
Dactylorhiza fuchsii			I	I	II	I
Lychnis flos-cuculi	I		I	I		I
Ditrichum flexicaule	I	I	I	I		I
Plagiomnium rostratum		I	I	I		I
Thuidium tamariscinum	I		I	I		I
Tortula ruralis ssp ruraliform	I	I		I	II	I
Filipendula ulmaria	I	I	I	I		I
Gentianella campestris			I			I

Table MG5 (cont'd)

	a	b	c	d	e	5
Lathyrus pratensis	I			I		I
Leontodon hispidus	II		I			I
Nardus stricta			I	I	I	I
Poa trivialis	I			I		I
Selaginella selaginoides	I		I	I		I
Ammophila arenaria	I	I			I	I
Asperula cynanchica		I	I			I
Conopodium majus		I	I			I
Festuca ovina			I		I	I
Geranium molle		I	I	I		I
Avenula pubescens		I	I		I	I
Medicago lupulina	I		I		I	I
Plantago major	I	I	I			I
Potentilla anglica		I	I			I
Rosa pimpinellifolia	I	I				I
Sagina nodosa			I	I		I
Urtica dioica		I	I	I		I
Plagiomnium undulatum		I		I		I
Pleurozium schreberi		I	I	I		I
Cirsium dissectum			I	I		I
Anacamptis pyramidalis	I				I	I
Antennaria dioica	I		I			I
Cardamine pratensis			I	I		I
Carex binervis			I	I		I
Carex demissa			I		I	I
Cerastium diffusum		I			I	I
Eleocharis quinqueflora			I	I		I
Hyacinthoides nonscripta	I		I			I
Epilobium parviflorum			I		I	I
Phleum pratense	I	I				I
Ranunculus flammula			I	I		I
Sonchus asper			I		I	I
Veronica montana		I	I			I
Dicranum scoparium	I			I		I
Peltigera canina	I			I		I
Barbula sp			I	I		I
Bryum sp	I	I				I
Dactylorhiza sp		I		I		I
Number of samples	11	20	24	35	6	96
Number of species/sample	21 (12-39)	21 (11-28)	27 (17-41)	21 (12-30)	21 (14-28)	

a *Lolium perenne* subcommunity
b *Galium verum* subcommunity
c *Prunella vulgaris* subcommunity
d *Holcus lanatus/Trifolium pratense* subcommunity
e *Carex nigra* subcommunity

Table MG5 (Cont'd)

Additional species of constancy I in subcommunities a-e

a: Coeloglossum viride, Orobanche minor

b: Hypericum perforatum, Sanguisorba minor, Silene dioica, Elymus farctus, Arabis hirsuta, Lolium multiflorum, Viola tricolor ssp. curtisii, Dactylorhiza majalis.

c: Anagallis arvensis, Orchis mascula, Poa annua, Rumex crispus, Matricaria maritima, Tussilago farfara, Veronica serpyllifolia, Campylium stellatum, Lathyrus palustris, Pinguicula vulgaris, Dactylorhiza maculata, Crepis capillaris, Draba incana, Juncus bufonius, Juncus maritimus, Juniperus communis communis, Hypericum pulchrum, Carex echinata, Veronica officinalis, Cirsium palustre, Lathyrus montanus,

d: Mentha aquatica, Eleocharis palustris, Glaux maritima, Veronica arvensis, Juncus effusus, Juncus acutiflorus, Ophioglossum vulgatum, Pedicularis palustris, Senecio aquaticus, Bryum pseudotriquetrum

e: Armeria maritima, Cochlearia officinalis, Barbula convoluta, Mnium hornum, Frullania tamarisci, Corylus avellana (g), Rubus fruticosus agg (g), Pinus pinaster, Picea sitchensis (g), Acer pseudoplatanus (s).

List of Releves in the 5 subcommunities

a: 355 392 422 449 536 668 737 1374 1376 1425 1455

b: 214 376 386 408 413 418 426 428 451 730 733 832 836 1209 1259 1347 1348 1365 1382 1407

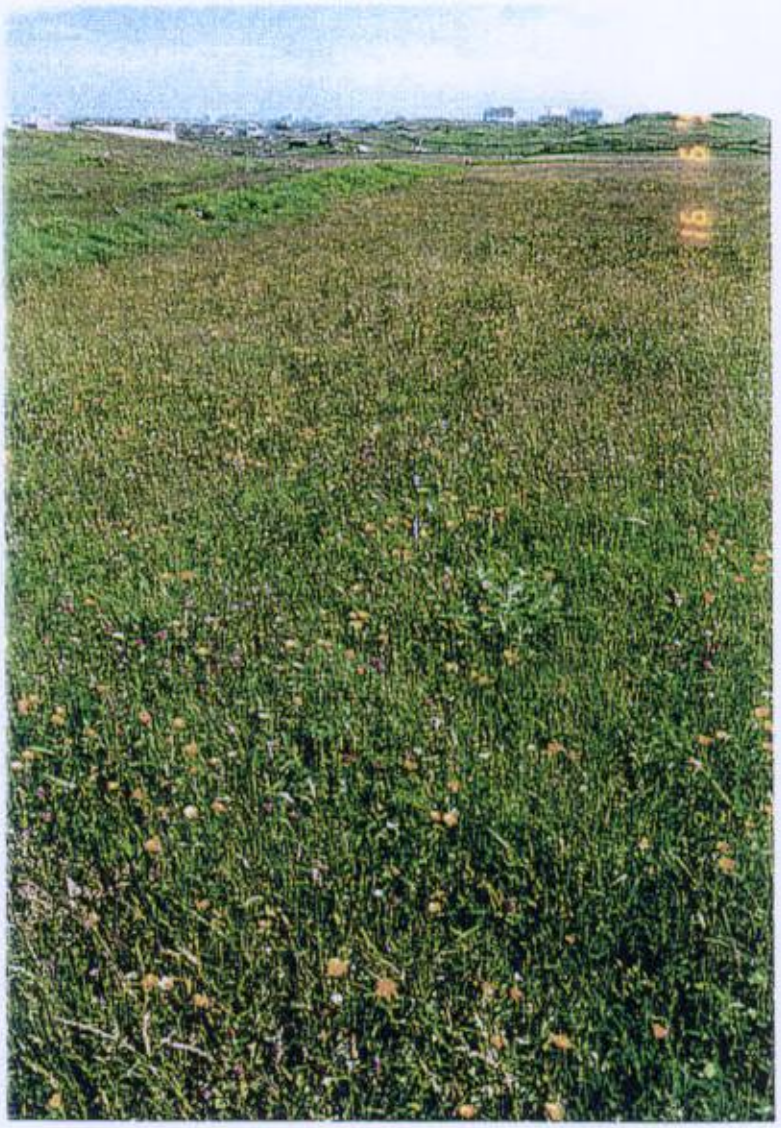
c: 24 54 55 375 434 442 459 496 553 626 642 666 671 976 1077 1145 1306 1314 1354 1385 1146 1186 1210 1271

d: 27 131 147 231 238 340 345 377 490 510 520 563 614 615 623 756 904 905 918 919 921 945 998 1046 1049 1153 1154 1185 1318 897 899 903 793

e: 128 290 393 645 729 762

96503.21

96921.33



96907.34

MG7

Lolium perenne leys and related grasslands

Synonymy

Lolio-Plantaginion Sissingh 1969

Constant species

Lolium perenne

Species of note

Carex hirta, Avena fatua

Floristic composition and structure

Lolium perenne is the only constant species in this community, in what represents a species-poor sward. In many respects, it represents a highly managed and botanically uninteresting community.

Two sub-communities are recognised, a *Lolium/Plantago lanceolata*-dominated sward and a species-poor *Lolium perenne*-dominated community. The former community is ascribale to the Lolio-Plantaginetum (Link 1921) Beger 1930 *emend.* Sissingh 1969 (MG7e). The latter community has a range of 4 to 12 species per quadrat and is best ascribed to *Lolium perenne-Trifolium repens* leys (MG7a). *Trifolium repens* is not a constant in this sward in the recorded data..

Herb cover is variable in this community but the cover of *Lolium* can be very high. Bare soil can also be quite high in some of the less well-established communities. The average number of species per quadrat in this community is 11 species.

Habitat

This community represents a re-seeded grassland community which can be quite successful on light, sandy soils. Species diversity and variety is quite poor here and

this grassland type is cultivated to increase productivity and palatablilty of the grassland sward.

Distribution within the study area

This is a community which was recorded at three sites within the study area, namely in the Mullet peninsula, Co. Mayo, Lettermacward, Co. Donegal and Bunduff/Trawlua, Co. Sligo. This community is found in areas that are very managed and in which re-seeding and fertilisation are common farming practices.

Affinities

The affinities of this community are very clear. It is analagous to the Lolio-Plantaginion Sissingh 1969. In the NVC, this community is referred to as *Lolium perenne* leys and related grasslands (MG7).

Table MG7

Sample number	860	832	859	889	372	404	373	405	624	374	829	830	858	
	e	e	e	e	e	e	e	a	a	a	a	a	a	
Herb cover (%)	65	95	100	90	85	100	100	100	100	100	95	90	80	
Herb height, centimetres	8	20	15	30	8	70	15	40	20	40	80	100	10	
Moss cover (%)	0	1	0	0	40	0	3	0	0	0	0	0	0	
Bare soil (including sand)	35	0	0	10	15	0	0	0	0	0	5	10	25	
Slope, degrees	0	0	0	0	0	0	0	0	0	0	0	0	0	
														Con
Lolium perenne	7	3	9	8	6	5	9	4	5	9	10	8	8	V
Plantago lanceolata	3	4	3	4	3	4	2							III
Poa pratensis				4	6	2	2	4	5	3				III
Holcus lanatus		4				4	2	8	5					III
Trifolium repens		4	3				5		6		3			III
Taraxacum officinale agg			3	3				2		2		1		III
Festuca rubra		4	4			6		4						II
Bellis perennis					3	3	3				2			II
Capsella bursa-pastoris	3		2									2		II
Chenopodium album	1											1	3	II
Cirsium vulgare				2	3		3		2					II
Cynosurus cristatus		5				3	3							II
Dactylis glomerata			2	2				4						II
Galium verum		3	3	3										II
Senecio jacobaea			3	2	3				3					II
Trifolium pratense		5				5					3			II
Achillea millefolium	3									4				I
Carex hirta						3		3						I
Centaurea nigra		3									3			I
Cerastium fontanum					4	4	3							I
Geranium molle			2	3	3									I
Leontodon autumnalis			3						2					I
Lotus corniculatus		2	2											I
Phleum pratense						3		4						I
Plantago major			3		4				3					I
Poa annua	4		4		3									I
Poa trivialis				2		5								I
Prunella vulgaris		3					2							I
Ranunculus acris						4		6						I
Rumex acetosa						3						2		I
Sisymbrium officinale	1			4										I
Stellaria media										3		2		I
Agrostis canina									6					I
Agrostis stolonifera		3												I
Agrostis capillaris		2												I
Anthoxanthum odoratum		2												I
Atriplex patula													4	I
Avena fatua												3		I
Bromus hordeaceus				2										I
Leucanthemum vulgare		4												I
Cirsium arvense									6					I
Hydrocotyle vulgaris											2			I
Koeleria macrantha					5					2				I
Leontodon taraxacoides		3												I
Polygonum aviculare				3										I
Potentilla anserina									2					I
Ranunculus bulbosus							2							I
Ranunculus repens									2					I
Rhinanthus minor						5								I
Rumex crispus												2		I
Rumex obtusifolius								3						I
Salix repens agg		5												I
Senecio vulgaris												2		I
Sonchus asper	4													I
Trifolium dubium						2								I
Veronica chamaedrys										3				I
Veronica serpyllifolia										3				I
Vicia cracca		2												I
Callergon cuspidatum							4							I
Plagiomnium rostratum		2												I
Rhytidiadelphus squarrosus					6		3							I
Avena sativa												3		I
Solanum tuberosum													3	I
Secale cereale												2		I
Odontites verna					3									I
Number of species	8	19	14	13	13	16	13	10	12	8	6	11	4	11

MG10

Holcus lanatus-Juncus effusus rush pasture

Synonymy

Holco-Juncetum effusi Page 1980

Constant species

Juncus effusus, Holcus lanatus, Trifolium repens, Agrostis stolonifera, Cerastium fontanum, Bellis perennis, Ranunculus acris

Species of note

Carex ovalis

Floristic composition and structure

This is a community in which *Juncus effusus* is the predominant species. This species can grow to 100 cm in height and is the most obvious component of the community. The ground flora is characterised by the following species; *Holcus lanatus, Tricolium repens, Agrostis stolonifera, Cerastium fontanum, Bellis perennis* and *Ranunculus acris*, all of which attain high constancies here. Moss cover varies from between 0% and 30% and *Calliergon cuspidatum, Brachythecium rutabulum, Eurhynchium praelongum* and *Rhytidiadelphus squarrosus* are the most commonly occurring species. The average number of species per quadrat is 14.

Habitat

This is a community which occurs in permanently waterlogged mineral soils at relatively low altitudes.

Distribution within the study area

The three quadrats included in Table MG10 were recorded in Lunniagh, Co. Donegal, Bunduff/Trawlua, Co. Sligo and Dooaghtry, Co. Mayo.

Affinities

This community is ascribable to the Holco-Juncetum effusi Page 1980, a synonym of the *Holcus lanatus-Juncus effusus* rush pasture (MG10). This vegetation presented in Table MG10 is further classified to the typical sub-community of *Holcus lanatus-Juncus effusus* rush pasture, i.e.MG10a.

Table MG10

Sample number	179	588	1101	
Herb cover (%)	100	100	100	
Herb height, centimetres	30	60	100	
Moss cover (%)	10	0	30	
Bare soil (including sand)	0	0	0	
Slope, degrees	0	0	0	
				Constancy
Holcus lanatus	6	6	2	V
Juncus effusus	7	9	8	V
Trifolium repens	6	4	4	V
Agrostis stolonifera		4	4	IV
Cerastium fontanum		2	2	IV
Bellis perennis	5	3		IV
Ranunculus acris	3	3		IV
Carex panicea	4			II
Cynosurus cristatus	6			II
Festuca rubra	4			II
Juncus articulatus	3			II
Plantago lanceolata	6			II
Prunella vulgaris	4			II
Senecio jacobaea	3			II
Calliergon cuspidatum	4			II
Brachythecium rutabulum	4			II
Veronica beccabunga		2		II
Angelica sylvestris		1		II
Vicia sepium		1		II
Potentilla anserina		6		II
Iris pseudacorus		3		II
Cirsium vulgare		2		II
Agrostis capillaris			5	II
Anthoxanthum odoratum			3	II
Carex ovalis			1	II
Cirsium palustre			5	II
Festuca ovina			3	II
Galium palustre			2	II
Ranunculus repens			2	II
Eurhynchium praelongum			3	II
Rhytidiadelphus squarrosus			5	II
Lophocolea bidentata			3	II
Number of species	14	13	15	Mn = 14

96906.25

MG11

Festuca rubra-Agrostis stolonifera-Potentilla anserina grassland

Constant species

Agrostis stolonifera, Festuca rubra

Species of note

Atriplex laciniata, Polygonum oxyspermum, Listera ovata, Ophioglossum vulgatum, Carlina vulgaris

Floristic composition and structure

127 quadrats were recorded from this community throughout the study area and all of the sub-communities identified have high constancies of the following species; *Agrostis stolonifera, Festuca rubra,* and, to a lesser extent, *Potentilla anserina*. 4 sub-communities are recognised from the sampled data, 3 of which (a, b, and c) are described in the NVC. The mean herb cover in the sub-communities is quite variable, varying from 71% in MG11b to 97% in MG11a. Moss cover does not exceed 40% in any of the sub-communities. A full list of the quadrat numbers assigned to each sub-community is given at the end of Table MG11. Species which have a constancy of I in each of the sub-communities are also listed at the end of Table MG11.

MG11a (*Lolium perenne* sub-community) is composed of 6 samples, with an average of 17 species per sample. This community is analagous to the sub-community of the same name described in the NVC, but *Poa pratensis, Cerastium fontanum, Rhtidiadelphus squarrosus* and *Luzula campestris* are diagnostic in the Irish data. Diagnostic species for the sub-community are *Lolium* and *Holcus lanatus*. The average pH from soil samples in this community is 7.8.

MG11b (*Matricaria maritima* sub-community) is composed of 11 samples, with an average of 11 species per sample. This sub-community is analagous to

MG5b described in the NVC, but *Atriplex prostrata* is absent from the Irish quadrats. *Rumex crispus*, *Glaux maritima* and *Senecio vulgaris* have reasonable constancy in this sub-community. This species composition of this community highlights the brackish conditions that prevail here.

MG11c (*Carex arenaria* sub-community) is composed of 18 samples, with an average of 10 species per sample. Some similarities exist between this community and the *Honkenya peploides* sub-community described in the NVC, namely the high constancy of *Carex arenaria* in both communities. Other species of note include *Senecio jacobea* and *Elymus farctus*. The pH from a soil sample in this community is 8.6.

MG11d (*Carex nigra* sub-community) is a newly erected sub-community to house vegetation that would have been accomodated in SD17 in the NVC. This type of vegetation has stronger floristic links with MG11 and is viewed as being transitional to the SX3 (*Carex nigra* poor-fen vegetation). There are 92 samples in this vegetation type, with an average of 22 species per sample. *Carex nigra*, *Prunella vulgaris*, *Bellis perennis*, *Hydroctyle vulgaris*, *Juncus articulatus*, *Ranunculus flammula*, *Parnassia palustris*, *Selaginella selaginoides*, *Bryum pseudotriquetrum*, *Carex panicea* and *Linum catharticum* are diagnostic for this sub-community. This sub-community is considerably wetter than the previous sub-communities but the community constant species are still represented here. The average pH from soil samples in this community is 7.4.

Habitat

This is a moist grassland community that is periodically inundated with fresh or brackish surface water. The community is usually encountered close to sea level and can occur as extensive stands, which are susceptible to poaching by grazing animals.

Distribution within the study area

This community was recorded in a variety of locations throughout the study area. The main sites where this community was sampled were the Mullet Peninsula and Dooaghtry (Co. Mayo), Lettermacaward/Clooney, Sheskinmore, Lunniagh (all in Co. Donegal) and Mannin Bay (Co. Galway). This community was also recorded in Keadue, Melmore/Tranarossan, Iniskea North, Lough Doo, Keel Lough, Omey

Island, Dogs Bay, Mason Island, Finnish Island, Inis Meáin, Kinrovar, Garter Hill, Bunduff/Trawlua and Inis Oírr.

Affinities

The vegetation presented in Table MG11 is ascribable to the *Festuca rubra-Agrostis stolonifera-Potentilla anserina* grassland, as described in the NVC. Sub-community MG11d is erected to accommodate *Carex nigra*-dominated wet grassland, which also has floristic links with SX3 (*Carex nigra* poor-fen).

Table MG11

Subcommunity	a	b	c	d	11
Mean herb cover	97	71	90	87	
Mean herb height	18	17	27	10	
Mean moss cover	32	35	9	40	
Slope (range)	0-4	0-30	0-30	0-40	
pH (number of samples)	7.8 (2)	–	8.6 (1)	7.43 (12)	
Agrostis stolonifera	V	V	V	V	V
Potentilla anserina	V	V	IV	III	III
Festuca rubra	IV	III	III	IV	IV
Lolium perenne	IV	I	II	I	I
Poa pratensis	V	I	II	II	II
Holcus lanatus	IV	I		II	II
Cerastium fontanum	IV	II		II	II
Rhytidiadelphus squarrosus	III		I	I	I
Luzula campestris	II			I	I
Matricaria maritima		III	I	I	I
Rumex crispus	II	III	I	I	I
Glaux maritima		III	I	II	II
Senecio vulgaris		II			I
Carex arenaria	II	II	IV	II	II
Senecio jacobaea	I	I	II	I	I
Carex nigra	II	I		IV	III
Prunella vulgaris	I	I		IV	III
Bellis perennis	II	I	II	IV	III
Hydrocotyle vulgaris	I	I	I	IV	III
Juncus articulatus	I	I	I	IV	III
Ranunculus flammula				II	II
Parnassia palustris				II	I
Selaginella selaginoides				II	I
Bryum pseudotriquetrum				II	I
Carex panicea				II	II
Linum catharticum				II	II
Plantago lanceolata	III	II	II	III	III
Trifolium repens	IV	II	II	IV	IV
Calliergon cuspidatum	II	I		III	III
Carex flacca		I	I	III	III
Leontodon autumnalis		I	II	III	III
Lotus corniculatus	III	II	II	II	II
Sagina nodosa	I		I	III	II
Anagallis tenella	I	I		II	II
Ranunculus acris	I	I		II	II
Euphrasia officinalis agg	I			II	II
Plantago coronopus	I			II	II
Cynosurus cristatus	II	I		II	II
Plantago maritima		I		II	II
Taraxacum officinale agg	II	I	II	II	II
Ranunculus repens	II	I	II	I	I
Mentha aquatica		I	I	I	I
Leontodon taraxacoides			I	I	I
Cardamine pratensis	I		I	I	I
Eleocharis palustris		I	I	I	I
Trifolium pratense	I	I	I	I	I
Brachythecium albicans	I		I	I	I

Table MG11 (cont'd)

Subcommunity	a	b	c	d	11
Eleocharis quinqueflora		I	I	I	I
Ranunculus bulbosus	I		I	I	I
Carex demissa	I	I		I	I
Succisa pratensis		I		I	I
Brachythecium rutabulum		I	I	I	I
Bryum sp		I	I	I	I
Hypochoeris radicata	I	I	I	I	I
Drepanocladus revolvens		I		I	I
Anthoxanthum odoratum	II		I	I	I
Homalothecium lutescens			I	I	I
Eurhynchium praelongum			I	I	I
Cirsium vulgare	I	I	I	I	I
Carex pulicaris	I			I	I
Rhinanthus minor	I			I	I
Pseudoscleropodium purum	I		I	I	I
Elymus farctus boreali-atlanti		II	II		I
Galium verum	I		I	I	I
Ammophila arenaria	I	I	I		I
Caltha palustris				I	I
Centaurea nigra	I		I	I	I
Epilobium palustre	I			I	I
Epilobium parviflorum	I			I	I
Myosotis laxa caespitosa		I		I	I
Juncus bufonius		I		I	I
Rumex acetosa	I	I	I	I	I
Triglochin maritimum		I		I	I
Vicia cracca	I		I	I	I
Achillea millefolium	II	I		I	I
Carex disticha			I	I	I
Carex otrubae		I		I	I
Cerastium diffusum		I	I		I
Equisetum arvense			I	I	I
Filipendula ulmaria			I	I	I
Iris pseudacorus		I	I	I	I
Juncus gerardi			I	I	I
Tussilago farfara		I	I	I	I
Odontites vernus			I	I	I
Drepanocladus aduncus			I	I	I
Lythrum salicaria			I	I	I
Epilobium hirsutum		I		I	I
Eryngium maritimum		I	I		I
Carex distans		I		I	I
Polygonum aviculare		I	I		I
Nasturtium officinale		I		I	I
Sedum acre		I		I	I
Galium aparine		I	I		I
Urtica dioica		I	I		I
Veronica chamaedrys	I			I	I
Number of samples	6	11	18	92	127
Number of species/sample	17 (5-29)	11(3-24)	10 (3-18)	22 (6-32)	

a *Lolium perenne* subcommunity
b *Matricaria maritima* subcommunity
c *Carex arenaria* subcommunity
d *Carex nigra* subcommunity

Table MG11 (cont'd)

Additional species of constancy I in subcommunities a-d

a: Lathyrus pratensis, Dactylis glomerata

b: Atriplex prostrata, Atriplex laciniata, Honkenya peploides, Poa trivialis, Polygonum oxyspermum, Rumex obtusifolius, Cochlearia officinalis

c: Arrhenatherum elatius, Prunus spinosa (s), Pteridium aquilinum, Polygonum persicaria, Stellaria media Plantago major, Cirsium arvense

d: Senecio aquaticus, Fissidens adianthoides, Angelica sylvestris, Anthyllis vulnerana, Armeria maritima, Briza media, Listera ovata, Molinia caerulea, Phragmites australis, Pinguicula vulgaris, Sagina procumbens, Salix repens agg., Campylium stellatum, Eriophorum angustifolium, Danthonia decumbens, Equisetum palustre, Galium palustre, Potentilla erecta, Samolus valerandi, Climacium dendroides, Aneura pinguis, Scirpus setaceus, Ctenidium molluscum, Nardus stricta, Triglochin palustre, Koeleria macrantha, Lychnis flos-cuculi, Poa annua, Polygala vulgaris, Pilosella officinarum agg, Agrostis capillaris, Barbula sp, Apium nodiflorum, Gentianella campestris, Leontodon hispidus, Thymus praecox, Ditrichum flexicaule, Philonotis fontana, Cirsium dissectum, Dactylorhiza incarnata, Carex echinata, Pedicularis palustris, Potentilla anglica, Viola riviniana, Hypnum cupressiforme, Plagiomnium rostratum, Thuidium tamariscinum, Berula erecta, Cerastium glomeratum, Menyanthes trifoliata, Oenanthe lachenalii, Ophioglossum vulgatum, Juncus bulbosus, Juncus effusus, Carex hostiana, Centaurium erythraea, Cerastium semidecandrum, Trifolium dubium, Cratoneuron commutatum, Hylocomium splendens, Plagiomnium undulatum, Rhytidiadelphus triquetrus, Pellia epiphylla, Saccogyna viticulosa, Baldellia ranunculoides, Carlina vulgaris, Desmazeria marina, Leucanthemum vulgare, Cirsium palustre, Dactylorhiza fuchsii, Daucus carota, Eleocharis multicaulis, Festuca ovina, Glyceria fluitans, Ranunculus ficaria, Juncus conglomeratus

List of quadrats in the 4 subcommunities

a:	185	274	300	399	589	1309				
b:	110	160	277	341	398	583	934	1317	1372	1375
	1439									
c:	255	370	396	397	435	815	856	873	874	943
	948	952	966	974	1225	1270	1366	1402		
d:	10	11	43	46	61	62	63	69	87	135
	143	165	182	198	199	248	259	260	285	305
	335	369	406	414	416	456	500	514	526	542
	574	576	591	627	682	686	701	711	719	720
	751	755	801	837	891	968	969	983	996	1001
	1002	1003	1004	1009	1012	1023	1036	1040	1042	1043
	1045	1055	1069	1070	1082	1083	1097	1104	1113	1118
	1121	1123	1126	1127	1131	1132	1133	1151	1165	1194
	1214	1228	1229	1242	1245	1265	1273	1302	1324	1345
	1371	1440								

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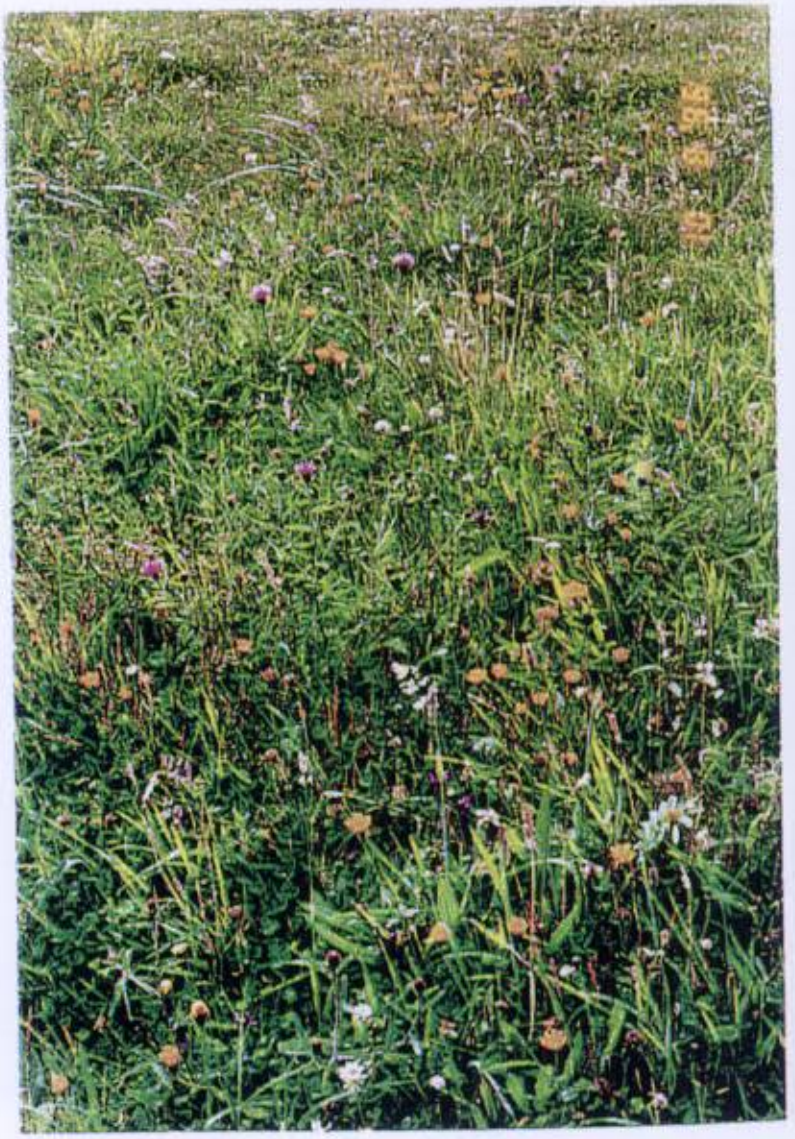

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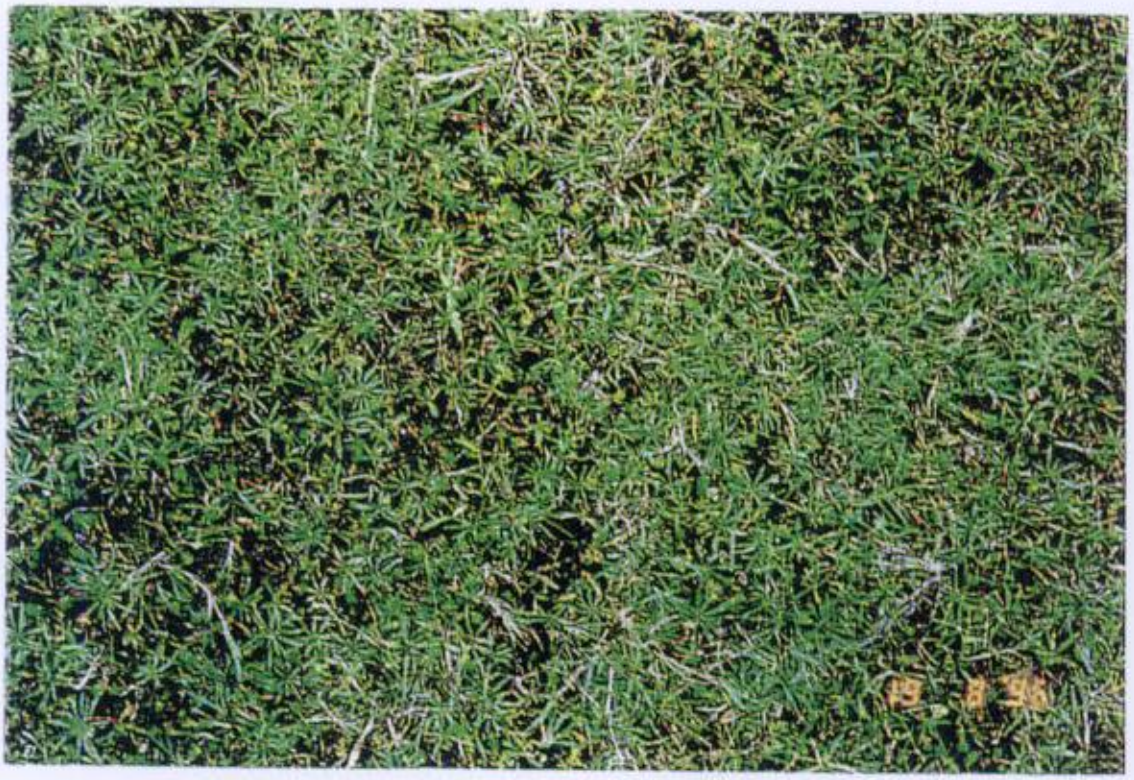

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MG12

Potentillo-Festuca arundinacea grassland

Synonymy

Potentillo-Festucetum arundinaceae Nordhagen 1940

Constant species

Carex otrubae, Vicia cracca, Agrostis stolonifera, Ranunculus acris, Rhinanthus minor, Phragmites australis, Potentilla anserina, Trifolium repens, Trifolium pratense, Cerastium fontanum, Equisetum arvense, Holcus lanatus, Polygonum amphibium

Floristic composition and structure

This community is characterised by the presence of *Carex otrubae, Vicia cracca, Agrostis stolonifera, Ranunculus acris, Rhinanthus minor* and *Phragmites australis*. It is similar in many respects to the *Festuca rubra-Agrostis stolonifera-Potentilla anserina* grassland (MG11) but the high occurrence of *Carex otrubae* and *Phragmites australis* suggest the inclusion of this vegetation type in *the Oenanthe lachenalii* sub-community (MG12b). *Scirpus maritimus* also occurs in this community, suggesting a maritime influence. The absence of *Festuca arundinacea* from the sampled vegetation is of note but otherwise the community is a reasonable fit with MG12.

Habitat

This vegetation type is a coastal community that occurs in areas under brackish influence.

Distribution within the study area

The community was recorded in one location in the study area, on Mweenish Island, Co. Galway.

MGX1

Juncus bufonius-Agrostis stolonifera grassland

Constant species

Agrostis stolonifera, Juncus bufonius, Juncus articulatus

Floristic composition and structure

This previously undescribed community is encountered along stream sides that occasionally flood and immerse the vegetation here. The constant species in this vegetation type are *Agrostis stolonifera, Juncus bufonius* and *Juncus articulatus* and the number of species per sample is usually quite low. The average number of species per sample in this community is 9. Some representative species of ditch vegetation are also present in the community, emphasing the influence of moving water in this community. Also of note here are species such as *Glaux maritima, Atriplex prostrata* and *Matricaria maritima*, hinting at a possible brackish influence.

Habitat

This community is fragmentary in nature and often occurs along stream sides and estuarine channels. This community has a high proportion of bare sand and experiences periodical inundation by water, some of which is saline, and occasional poaching and trampling by livestock.

Distribution within the study area

This community was recorded in a variety of different locations throughout the study area but it was not recorded in Co. Donegal. The following sites were a locus for the community: Bunduff/Trawlua (Co. Sligo), Dooaghtry, Kinrovar, Garter Hill, the Mullet Peninsula (all in Co. Mayo) and Mannin Bay, Finnish Island and Omey Island in Co. Galway.

Affinities

The community does not have strong affinities with any of the previously described communities in the NVC. A new community is erected to describe this vegetation type. The community may in fact be a precursor to MG11 (*Festuca rubra-Agrostis stolonifera-Potentilla anserina* grassland).

Table MGX1

Sample number	886	610	646	698	949	963	1063	1404	1164	1073	1403	1316	
Herb cover (%)	90	70	25	50	65	85	70	85	80	70	90	50	
Herb height, centimetres	10	20	3	2	10	10	10	5	3	2	3	4	
Moss cover (%)	0	0	0	0	0	0	0	5	5	0	0	0	
Bare soil (including sand)	5	10	85	70	20	20	50	20	20	40	10	60	
Bare rock (%)	5	10	0	0	40	0	0	0	0	0	0	0	
Slope, degrees	0	10	0	0	0	0	0	0	0	0	0	0	
Aspect, degrees	0	230	0	0	0	0	0	0	0	0	0	0	
													Con
Agrostis stolonifera	7	7	2	3	4	6	5	4	6	5	2	3	V
Juncus bufonius	5	5	5	7	3	6	3		6	3	2	7	V
Juncus articulatus		3	1	2	4	4	7	8	3		2		IV
Apium nodiflorum				1		2		1	3				II
Glaux maritima									3	5	8	2	II
Rumex crispus		3			2	2	1						II
Sagina procumbens				1		3		2	3				II
Triglochin palustre				3				3		4	7		II
Cerastium fontanum					2	3		2					II
Plantago coronopus	5			2					1				II
Poa annua				2				2	4				II
Trifolium repens						3		3	5				II
Matricaria maritima	1				5				3				II
Atriplex prostrata					2							3	I
Bellis perennis								2	5				I
Carex arenaria					4	3							I
Cochlearia officinalis	3	7											I
Eleocharis palustris								2	6				I
Epilobium parviflorum								4			1		I
Lolium perenne								1	2				I
Tussilago farfara		2			5								I
Bryum sp								4	4				I
Taraxacum officinale agg.					3				2				I
Callitriche stagnalis				1									I
Cerastium glomeratum									2				I
Eleocharis quinqueflora											2		I
Equisetum arvense						2							I
Glyceria fluitans							3						I
Hypochoeris radicata					1								I
Leontodon autumnalis						1							I
Lotus corniculatus								2					I
Chamomilla suaveolens							2						I
Myosotis laxa caespitosa					3								I
Plantago major									2				I
Poa pratensis						6							I
Polygonum persicaria						1							I
Potentilla anserina												1	I
Ranunculus bulbosus								2					I
Ranunculus repens									3				I
Nasturtium officinale											2		I
Rumex acetosa				1									I
Sagina nodosa				2									I
Trifolium pratense						4							I
Veronica anagallis-aquatica								1					I
Brachythecium albicans								3					I
Brachythecium rutabulum									3				I
Myosotis seedling/sp								3					I
Equisetum sp				2									I
Algal mat										7			I
Number of species	5	6	3	12	12	14	6	18	19	5	8	5	9

CALCICOLOUS GRASSLAND COMMUNITIES

The communities encountered in this section are comprised of species that are typical of calcium-rich grassland situations. The soils are often very dry and grazing would appear to be an important feature in the maintenance of these communities. Many of the more species-rich assemblages can be accommodated in the Festuco-Brometea Braun-Blanquet et Tuxen 1943 em. Tx. 1961, while other communities have strong affinities with the Achilleo-Festucetum tenuifoliae Birse et Robertson 1976. Further research is needed to augment the data and to differentiate between similar vegetation types.

CG7

Festuca ovina-Hieracium pilosella-Thymus praecox grassland

Constant species

Festuca ovina, Thymus praecox, Hypochoeris radicata, Lotus corniculatus, Astragalus danicus, Cuscuta epithymum, Agrostis canina, Linum catharticum, Sagina nodosa, Homalothecium lutescens, Ditrichum flexicaule

Species of note

Astragalus danicus, Cuscuta epithymum, Blackstonia perfoliata

Floristic composition and structure

The most notable feature of this community is the presence here of *Astragalus danicus* and *Cuscuta epithymum*, in association with *Festuca ovina, Thymus praecox, Hypochoeris radicata* and *Lotus corniculatus*. Other species of note include *Agrostis canina, Linum catharticum, Leontodon hispidus* and *Sagina nodosa*. The most common bryophytes in this community are *Homalothecium lutescens* and *Ditrichum flexicaule*. The influence of sand and the open conditions and shallow soils result in an associated flora including *Pilosella officinarum* agg., *Ammpohila arenaria, Sedum acre, Blackstonia perfoliata, Medicago lupulina* and *Centaurium erythraea*.

This vegetation is further assigned to the *Cladonia* spp sub-community (CG7b), although *Cladonia* spp are only found in quadrat 1416. The average number of species in this community is 21 species per quadrat. The sward is typically very short and herb height does not exceed 4 cm.

Habitat

On Inis Mór, the only location where this vegetation type was sampled in the study area, this community occurs on disturbed and shallow sandy soils over rock. There is much bare sand in this community and *Astragalus danicus* and *Cuscuta epithymum*

seem to thrive in the open conditions. The pH of the one sand sample collected in this community was 8.2.

Distribution within the study area

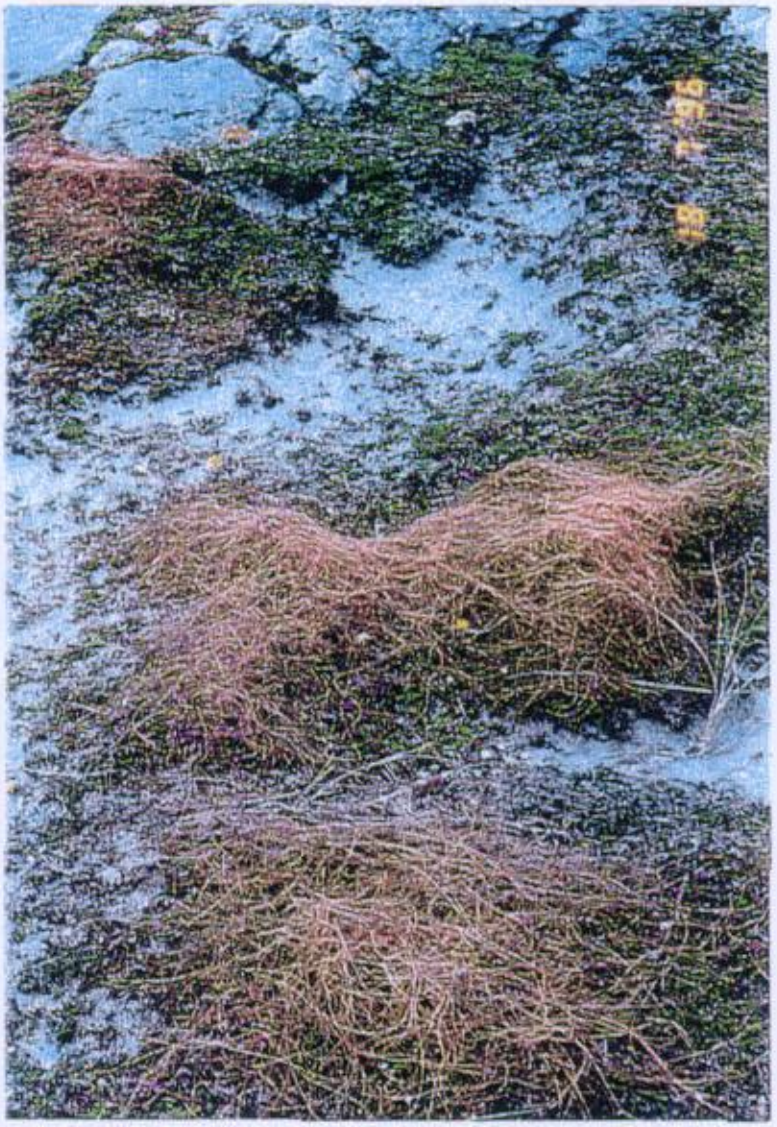
This community was found exclusively on Inis Mór, Co. Galway, an island which is, with Inis Meáin, the primary locus for *Astagalus danicus* in Ireland.

Affinities

This community is best accommodated in the *Festuca ovina-Hieracium pilosella-Thymus praecox/pulegioides* grassland (CG7) described in the NVC. The sub-community most similar to the sampled data is the *Cladonia* spp. sub-community (CG7b).

Table CG7

Sample number	1416	1418	1417	1426	
Herb cover (%)	75	80	50	100	
Herb height, centimetres	2	2	4	4	
Moss cover (%)	80	50	30	20	
Bare soil (including sand)	10	10	15	0	
Bare rock (%)	5	0	2	0	
Slope, degrees	0	2	0	0	
Aspect, degrees	0	180	0	0	
pH	–	–	8.2	–	
					Constancy
Festuca ovina	5	5	7	7	V
Hypochoeris radicata	4	4	3	3	V
Lotus corniculatus	3	4	3	3	V
Thymus praecox arcticus	6	7	3	7	V
Astragalus danicus	3	5	5		IV
Cuscuta epithymum		5	2	4	IV
Agrostis canina	4		3	3	IV
Linum catharticum	3	3		2	IV
Sagina nodosa	3	2	4		IV
Homalothecium lutescens		4	5	4	IV
Ditrichum flexicaule	3	3	3		IV
Leontodon hispidus	3		5		III
Plantago coronopus	4		3		III
Blackstonia perfoliata	2		2		III
Centaurium erythraea	2	2			III
Medicago lupulina	1			2	III
Pilosella officinarum agg	1	3			III
Sedum acre	2	3			III
Bryum sp	7	5			III
Pseudoscleropodium purum			2	5	III
Plantago lanceolata			1	3	III
Ammophila arenaria		3	5		III
Cladonia squamules/sp	5				II
Collema sp	3				II
Bellis perennis		4			II
Campanula rotundifolia		2			II
Viola tricolor		3			II
Hypnum cupressiforme		4			II
Plagiothecium sp		4			II
Sonchus sp		1			II
Tortella tortuosa			6		II
Euphorbia paralias			3		II
Leontodon autumnalis			1		II
Plantago maritima			1		II
Polygala vulgaris			2		II
Ranunculus bulbosus			2		II
Silene vulgaris maritima			3		II
Dactylis glomerata				3	II
Daucus carota				3	II
Rhinanthus minor				5	II
Euphrasia officinalis agg				4	II
Galium verum				3	II
Holcus lanatus				2	II
Koeleria macrantha				3	II
Elymus farctus boreali-atlanti				2	II
Anthyllis vulneraria				3	II
Thuidium tamariscinum				2	II
Tortula ruralis ssp ruraliform				7	II
Number of species	19	21	23	22	Mean = 21



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CG10

Festuca ovina-Agrostis capillaris-Thymus praecox grassland

Synonymy

Species-rich Agrosto-Festucetum McVean & Ratcliffe 1962; Achilleo-Festucetum tenuifoliae Birse & Robertson 1976

Constant species

Agrostis capillaris, Festuca ovina, Thymus praecox, Potentilla erecta, Plantago lanceolata, Trifolium repens, Succisa pratensis, Selaginella selaginoides, Bellis perennis, Fissidens adianthoides, Prunella vulgaris, Anthoxanthum odoratum, Cynosurus cristatus, Holcus lanatus, Lotus corniculatus, Ctenidium molluscum, Plantago maritima, Danthonia decumbens, Leucanthemum vulgare, Linum catharticum, Pilosella officinarum agg., Cerastium fontanum, Carex panicea, Koeleria macrantha, Cirsium dissectum, Calliergon cuspidatum, Parnassia palustris

Species of note

Spiranthes spiralis

Floristic composition and structure

The species composition which readily identifies this community is the combination of the following species; *Agrostis capillaris, Festuca ovina, Thymus praecox, Potentilla erecta, Plantago lanceolata* and *Prunella vulgaris*. This vegetation type can be further classified to sub-community level, namely the *Carex pulicaris-Carex panicea sub*-community (CG10b). In this sub-community, there are a mixture of Nardo-Galion and Cynosurion species (e.g. *Anthoxanthum odoratum, Trifolium repens, Cynosurus cristatus* and *Cerastium fontanum*), in association with species such as *Selaginella selaginoides, Ctenidium molluscum, Carex pulicaris, Carex panicea, Carex flacca, Linum catharticum and Succisa pratensis*. The average number of species in this community is very high, at 32 species per quadrat.

This community has a very high herb cover and the herb height does exceed 10 cm in the sampled data, perhaps due to the palatability of the species here.

Habitat

In the literature, this community is often referred to as an upland vegetation type. The two quadrats in Table CG10, however, were recorded almost at sea-level. The soil fertility is perhaps a more important characteristic of this community, and it would appear that the soil is quite calcareous in nature. The range of pH readings in the recorded data is from 6.3 to 7.2.

***Distribution* within the study area**

This community was found in three locations within the study area, in Lunniagh, Co. Donegal, Bunduff/Trawlua, Co. Sligo and in Dooaghtry, Co. Mayo.

Affinities

This community is a good example of *Festuca ovina-Agrostis capillaris-Thymus praecox* grassland (CG10). Other synonyms for this vegetation type include species-rich Agrosto-Festucetum McVean & Ratcliffe 1962 and Achilleo-Festucetum tenuifoliae Birse & Robertson 1976.

Table CG10

Sample number	1141 b	590 b	136 b	
Herb cover (%)	97	95	95	
Herb height, centimetres	2	3	10	
Moss cover (%)	3	30	10	
Bare soil (including sand)	1	2	0	
Slope, degrees	5	0	0	
Aspect, degrees	80	0	0	
pH	6.3	7.2	–	
				Constancy
Agrostis capillaris	4	3	6	V
Festuca ovina	5	5	6	V
Thymus praecox	3	3	6	V
Plantago lanceolata	4	4	5	V
Trifolium repens	3	4	4	V
Succisa pratensis	2	4	7	V
Selaginella selaginoides	2	4	6	V
Bellis perennis	2	3	4	V
Fissidens adianthoides	1	2	3	V
Potentilla erecta	3	2		IV
Prunella vulgaris	2	4		IV
Anthoxanthum odoratum	3	3		IV
Cynosurus cristatus	3	2		IV
Holcus lanatus	2	3		IV
Lotus corniculatus	2	5		IV
Ctenidium molluscum	4	6		IV
Plantago maritima	3	3		IV
Danthonia decumbens	3	3		IV
Leucanthemum vulgare	2	1		IV
Linum catharticum	2	2		IV
Pilosella officinarum agg	2	2		IV
Cerastium fontanum	1	2		IV
Carex panicea	5		5	IV
Koeleria macrantha	3		5	IV
Cirsium dissectum	2		2	IV
Calliergon cuspidatum		3	4	IV
Parnassia palustris		2	1	IV
Leontodon taraxacoides	4			II
Calluna vulgaris	2			II
Gentianella campestris	3			II
Agrostis canina	3			II
Centaurea nigra	2			II
Agrostis stolonifera		4		II
Poa pratensis		3		II
Carex flacca		4		II
Juncus articulatus		2		II
Euphrasia officinalis agg		1		II
Galium verum		3		II
Hypochoeris radicata		3		II
Leontodon autumnalis		3		II
Luzula campestris		3		II
Taraxacum officinale agg		2		II
Trifolium pratense		3		II
Anagallis tenella		3		II
Equisetum palustre		3		II
Pinguicula vulgaris		2		II
Hydrocotyle vulgaris		3		II
Briza media		3		II
Lathyrus pratensis		1		II
Carex pulicaris		2		II
Sagina nodosa		2		II
Carex nigra			5	II
Hypnum cupressiforme			4	II
Campanula rotundifolia			1	II
Anthyllis vulneraria			4	II
Dactylorhiza incarnata			1	II
Molinia caerulea			1	II
Polygala vulgaris			4	II
Schoenus nigricans			3	II
Spiranthes spiralis			1	II
Bryum sp			2	II
Number of species	30	43	24	Mean = 32

CG13

Dryas octopetala-Carex flacca heath

Constant species

Carex flacca, Festuca rubra, Plantago lanceolata, Salix repens agg., *Hylocomium splendens, Pseudoscleropodium purum, Rhytidiadelphus squarrosus, Calliergon cuspidatum, Homalothecium lutescens, Ranunculus acris, Agrostis capillaris, Bellis perennis, Listera ovata, Lotus corniculatus, Pilosella officinarum* agg., *Plantago maritima, Polygala vulgaris, Selaginella selaginoides, Danthonia decumbens, Thymus praecox, Trifolium repens, Viola riviniana, Rhytidiadelphus triquetrus, Thuidium tamariscinum*

Species of note

Listera ovata, Ophioglossum vulgatum

Floristic composition and structure

Species which characterise this community include *Carex flacca, Salix repens* agg., *Thymus praecox, Pseudoscleropodium purum, Bellis perennis, Plantago maritima, Lotus corniculatus* and *Plantago maritima*. Bryophytes form an important part of the community structure and the moss cover exceeds 70% in all three quadrats. Species of note include *Rhytidiadelphus triquetrus, Thuidium tamariscinum, Hylocomium splendens, Calliergon cuspidatum, Rhytidiadelphus squarrosus* and *Homalothecium lutescens*. All three quadrats are good examples of the *Salix repens-Empetrum nigrum* sub-community (CG13b).

Habitat

This community is encountered on highly calcareous sand, such as is found in Mannin Bay and Lettermacaward/Clooney.

Distribution within the study area

This community was sampled at two locations within the study area, at Mannin Bay, Co. Galway and in Lettermacaward/Clooney, Co. Donegal.

Affinities

The vegetation presented in Table CG13 is another example of a community that has strong similarities with a community previously described in the NVC, but which lacks one of the critical character species. In this instance, the sampled vegetation is assigned to the *Salix repens-Empetrum nigrum* sub-community of *Dryas octopetala-Carex flacca* heath (CG13b) but the relatively scarce species *Dryas octopetala* is absent from the sampled data. Otherwise the community is quite a good fit, with *Salix repens*, *Carex flacca*, *Rhytidiadelphus triquetrus* and *Pseudoscleropodium purum* all attaining high constancies.

Table CG13

Sample number	352	356	1326	
Herb cover (%)	90	75	80	
Herb height, centimetres	10	4	30	
Moss cover (%)	75	70	80	
Bare soil (including sand)	0	0	0	
Slope, degrees	0	0	0	
				Constancy
Carex flacca	3	5	2	V
Salix repens agg.	5	7	7	V
Festuca rubra	4	4	5	V
Plantago lanceolata	4	3	3	V
Hylocomium splendens	3	4	6	V
Pseudoscleropodium purum	7	6	4	V
Rhytidiadelphus squarrosus	3	3	5	V
Calliergon cuspidatum	3		5	IV
Homalothecium lutescens	4		5	IV
Ranunculus acris	2		4	IV
Agrostis capillaris	3	3		IV
Bellis perennis	2	3		IV
Listera ovata	2	1		IV
Lotus corniculatus	3	3		IV
Pilosella officinarum agg	4	4		IV
Plantago maritima	4	2		IV
Polygala vulgaris	4	3		IV
Selaginella selaginoides	2	2		IV
Danthonia decumbens	3	3		IV
Thymus praecox arcticus	3	4		IV
Trifolium repens	3	3		IV
Viola riviniana	3	2		IV
Rhytidiadelphus triquetrus	2	6		IV
Thuidium tamariscinum	2	3		IV
Achillea millefolium	2			II
Holcus lanatus	3			II
Luzula campestris	3			II
Succisa pratensis	4			II
Trifolium pratense	3			II
Carex arenaria		2		II
Leucanthemum vulgare		2		II
Galium verum		3		II
Koeleria macrantha		4		II
Potentilla anglica		1		II
Ophioglossum vulgatum		3		II
Ranunculus bulbosus		3		II
Ctenidium molluscum		3		II
Ditrichum flexicaule		3		II
Poa pratensis			4	II
Potentilla anserina			3	II
Pulicaria dysenterica			3	II
Vicia cracca			5	II
Taraxacum officinale agg			3	II
Number of species	29	30	15	Mean = 25

CGX1

Blackstonia perfoliata-Carex flacca grassland

Constant species

Blackstonia perfoliata, Carex flacca, Euphrasia officinalis agg., *Festuca rubra, Cynosurus cristatus, Galium verum, Lotus corniculatus, Plantago lanceolata, Trifolium repens, Bellis perennis, Linum catharticum, Pilosella officarum* agg., *Prunella vulgaris, Thymus praecox, Anagallis tenella, Danthonia decumbens, Leucanthemum vulgare, Luzula campestris, Rhytidiadelphus squarrosus.*

Species of note

Listera ovata, Cuscuta epithymum

Floristic composition and structure

This is a calcicolous grassland community in which *Blackstonia perfoliata* and *Carex flacca* are the characteristic species. Other species of note include *Euphrasia officinalis* agg., *Festuca rubra, Cynosurus cristatus, Galium verum, Lotus corniculatus, Plantago lanceolata, Trifolium repens, Bellis perennis* and *Linum catharticum.* This is a species-rich community, with an average of 29 species per quadrat. Moss species of note in the community include *Rhytidiadelphus squarrosus, Ditrichum flexicaule* and *Calliergon cuspidatum.*

There are three recognisable variants of this community. The first variant has a high constancy of species such as *Anthyllis vulneraria, Ammophila arenaria, Hypochoeris radicata* and *Briza media.* The community is often quite close to the sea and may be influenced by wind blown sand. Quadrats 669 and 670 are assigned to this variant.

Quadrats 681 and 684 are assigned to the second variant, which has a high constancy of *Parnassia palustris, Polygala vulgaris, Selaginella selaginoides, Anthoxanthum odoratum* and *Hydrocotyle vulgaris.* This variant is found in areas where the water table is closer to the surface and where wetter conditions prevail.

Quadrats 1260, 1261 and 1353 have a high constancy and cover/abundance of *Leucanthemum vulgare*, *Luzula campestris*, *Rhytidiadelphus squarrosus*, *Holcus lanatus* and *Trifolium pratense*. This community is found in areas where the soils are marginally more fertile, giving rise to an increase in Cynosurion species. Quadrat 1227 does not fit neatly into any of the above categories. Obviously, a larger data set is required before one can attach any significance to these initial observations.

Habitat

This community is found on shell sands, giving rise to a highly calcareous substrate (pH 8-8.8). Other ecological considerations, e.g. proximity to the sea, height of water table and fertility of the soil determine the precise species composition in this community.

Distribution within the study area

This community was recorded in Mannin Bay and Dogs Bay, Co. Galway and in Bunduff/Trawlua, Co. Sligo. All of these sites had shell sands and this may be an essential condition in the development of the community.

Affinities

This community does not have any strong affinities with any of the vegetation communities described in the NVC. The co-occurrence of *Blackstonia perfoliata*, *Carex flacca* and *Euphrasia officinalis* agg. is significant and merits the erection of a new community.

Table CGX1

Sample number	669	670	684	681	1227	1260	1261	1353	
Herb cover (%)	100	90	95	80	100	90	90	100	
Herb height, centimetres	4	3	3	3	3	5	10	20	
Moss cover (%)	30	60	15	70	3	75	80	10	
Bare soil (including sand)	0	0	0	0	0	0	0	0	
Slope, degrees	4	3	0	0	4	0	5	0	
Aspect, degrees	240	280	0	0	150	0	360	0	
pH	8	–	–	–	–	–	8.8	–	
									Const.
Blackstonia perfoliata	2	2	2	3	3	3	2	2	V
Carex flacca	3	3	5	3	6	2	4	5	V
Euphrasia officinalis agg	2	2	3	3	2	3	4	3	V
Festuca rubra	5	5	4	5	6	5	6	7	V
Cynosurus cristatus	3		6	4	3	3	3	4	V
Galium verum	5	4		4	3	5	5	4	V
Lotus corniculatus	5	2	4	3		5	5	3	V
Plantago lanceolata	4	4	4	3	3		5	3	V
Trifolium repens	3		4	4	3	6	7	5	V
Bellis perennis	3		2	2	4		3	3	IV
Linum catharticum	2	3	3	3	3	2			IV
Pilosella officinarum agg	3	2	4	3	2			2	IV
Prunella vulgaris	3		4	4	5	3		4	IV
Thymus praecox arcticus	6	4	4	3	5		3		IV
Anagallis tenella	4		6	3	3			2	IV
Danthonia decumbens	3	1	3	2				3	IV
Agrostis capillaris	3	3	4		3				III
Ditrichum flexicaule	4	5	3						II
Ranunculus bulbosus	3	3	3				2		III
Hypochoeris radicata	3	3		2					II
Ammophila arenaria	2	4							II
Anthyllis vulneraria	3	5							II
Briza media	2	1							II
Listera ovata	1	1	1						II
Parnassia palustris	2		2	4					II
Polygala vulgaris			3	1				1	II
Selaginella selaginoides			2	3					II
Anthoxanthum odoratum	2		4	2					II
Hydrocotyle vulgaris			3	4				5	II
Leucanthemum vulgare	2	2				8	2	2	IV
Luzula campestris	3		3			2	3	2	IV
Rhytidiadelphus squarrosus		3		4		7	9	3	IV
Holcus lanatus			4			5	3	5	III
Trifolium pratense					3	4		4	II
Centaurium erythraea			2			3		1	II
Achillea millefolium	2					2	3		II
Senecio jacobaea		2		1			2		II
Calliergon cuspidatum			3			7		5	II
Agrostis stolonifera				3	3				II
Carex arenaria		2						3	II
Carex pilulifera	2				2				II
Leontodon hispidus			4		3				II
Leontodon taraxacoides						2	3		II
Plantago maritima					3			1	II
Ranunculus repens			3					2	II
Brachythecium albicans	4			5					II
Climacium dendroides		3		2					II
Ctenidium molluscum			4		3				II
Hypnum cupressiforme	3				3				II

Table CGX1 (cont'd)

Sample number	669	670	684	681	1227	1260	1261	1353	
Pseudoscleropodium purum		4		4					II
Thuidium tamariscinum		3		4					II
Homalothecium lutescens	3								I
Cuscuta epithymum	5								I
Centaurea nigra	1								I
Gymnadenia conopsea	1								I
Ranunculus flammula	3								I
Avenula pubescens		3							I
Viola riviniana		2							I
Hylocomium splendens		5							I
Equisetum arvense			3						I
Festuca ovina			3						I
Plantago coronopus			1						I
Cladonia squamules/sp			2						I
Antennaria dioica			4						I
Agrostis canina			3						I
Equisetum palustre				3					I
Carex pulicaris				3					I
Cersatium sp				2					I
Taraxacum officinale agg.					2				I
Succisa pratensis					4				I
Cerastium fontanum						2			I
Plagiomnium undulatum						3			I
Anacamptis pyramidalis						1			I
Cerastium diffusum							2		I
Dactylis glomerata							3		I
Asperula cynanchica							3		I
Campanula rotundifolia							2		I
Sagina nodosa								3	I
Juncus articulatus								2	I
Leontodon autumnalis								3	I
Brachythecium rutabulum								3	I
Poa pratensis								3	I
Number of species	37	29	37	32	24	22	23	31	Mn=29

CGX2

Sesleria albicans-Carex flacca grassland

Constant species

Sesleria albicans, Carex flacca, Hypochoeris radicata, Anthyllis vulneraria, Linum catharticum, Lotus corniculatus, Thymus praecox, Euphrasia officinalis agg., *Cerastium glomeratum, Festuca rubra, Campanula rotundifolia, Galium verum, Plantago lanceolata, Pilosella officarum* agg., *Holcus lanatus, Koeleria macrantha, Trifolium pratense, Ctenidium molluscum, Frullania tamarisci, Calliergon cuspidatum, Hypnum cupressiforme*

Species of note

Sesleria albicans, Blackstonia perfoliata

Floristic composition and structure

Species of high constancy in this community are *Sesleria albicans, Carex flacca, Hypochoeris radicata, Anthyllis vulneraria, Linum catharticum, Lotus corniculatus* and *Thymus praecox*. Similarities exist between this community and the CGX1 but the CGX2 is more mesotrophic in nature, with a higher proportion of species such as *Plantago lanceolata, Holcus lanatus, Trifolium pratense, Cynosurus cristatus, Dactylis glomerata, Primula vulgaris, Cerastium fontanum* and *Rhinanthus minor*. The average number of species in this community is 27 species per quadrat.

Habitat

The range of recorded pH values from this community is from 8.2 to 8.5. The substrate is very calcareous and is similar to the previous community in that respect.

Distribution within the study area

This community was recorded in Mannin Bay (Co. Galway) and in Keadue (Co. Donegal).

Affinities

It is difficult to discuss the precise floristic affinities of this community based on so few quadrats. Further work may clarify the status of this community and result in the amalgamation of CGX1 and CGX2 into a *Carex flacca-Linum catharticum-Euphrasia offinalis agg.* community. At present, however, it is useful to view these communities as separate calcareous grassland swards that share some species in common.

Table CGX2

Sample number	295	1308	1322	
Herb cover (%)	85	75	80	
Herb height, centimetres	10	3	10	
Moss cover (%)	50	60	60	
Bare soil (including sand)	0	5	10	
Bare rock (%)	0	15	3	
Slope, degrees	7	50	30	
Aspect, degrees	10	310	110	
pH	8.2	8.5	–	
				Constancy
Sesleria albicans	6	7	5	V
Carex flacca	4	5	5	V
Anthyllis vulneraria	2	2	4	V
Hypochoeris radicata	4	2	4	V
Linum catharticum	1	2	3	V
Lotus corniculatus	3	3	4	V
Thymus praecox arcticus	4	3	4	V
Cerastium glomeratum	2		5	IV
Euphrasia officinalis agg	3		3	IV
Galium verum	3		4	IV
Pilosella officinarum agg	4		3	IV
Holcus lanatus	2	3		IV
Koeleria macrantha	3	4		IV
Plantago lanceolata	3	2		IV
Trifolium pratense	3	2		IV
Ctenidium molluscum	6	6		IV
Rhytidiadelphus squarrosus	3	4		IV
Frullania tamarisci	4	3		IV
Calliergon cuspidatum		3	5	IV
Hypnum cupressiforme		4	7	IV
Festuca rubra		4	5	IV
Campanula rotundifolia		1	5	IV
Antennaria dioica	3			II
Anthoxanthum odoratum	3			II
Ditrichum flexicaule	2			II
Avenula pubescens	4			II
Luzula campestris	2			II
Polygala vulgaris	2			II
Sanguisorba minor	2			II
Bellis perennis		2		II
Blackstonia perfoliata		1		II
Centaurium erythraea		1		II
Cerastium fontanum		3		II
Cynosurus cristatus		3		II
Dactylis glomerata		2		II
Agrostis capillaris		3		II
Primula vulgaris		2		II
Ranunculus bulbosus		1		II
Prunella vulgaris		2		II
Plantago maritima		3		II
Sagina nodosa		1		II
Succisa pratensis		4		II
Trifolium repens		3		II
Rhytidiadelphus loreus		3		II
Bryum sp		4		II
Fissidens sp		3		II
Asperula cynanchica			4	II
Anacamptis pyramidalis			2	II
Achillea millefolium			4	II
Rhinanthus minor			3	II
Rumex acetosa			4	II
Tortula ruralis ssp ruraliformis			3	II
Erica tetralix			2	II
Number of species	25	35	22	Mean = 27

UPLAND GRASSLAND COMMUNITIES

U4

Festuca ovina-Agrostis capillaris-Galium saxatile grassland

Synonymy

Species-poor Agrosto-Festucetum McVean & Ratcliffe 1962; Achilleo-Festucetum tenuifoliae Birse & Robertson 1976

Constant species

Agrostis capillaris, Festuca ovina, Cynosurus cristatus, Luzula campestris, Plantago lanceolata, Trifolium repens, Taraxacum officinale agg., *Bellis perennis, Ranunculus bulbosus, Poa pratensis, Lotus corniculatus, Rhytidiadelphus squarrosus, Cerastium fontanum, Leontodon autumnalis, Holcus lanatus, Prunella vulgaris*

Floristic composition and structure

Agrostis capillaris, Festuca ovina, Cynosurus cristatus, Luzula campestris, Plantago lanceolata, Trifolium repens and *Taraxacum officinale* agg. all attain high constancies in this community. Other species of note include *Bellis perennis, Ranunculus bulbosus, Poa pratensis, Lotus corniculatus, Rhytidiadelphus squarrosus, Cerastium fontanum, Leontodon autumnalis, Holcus lanatus* and *Prunella vulgaris*, further emphasing the close similarity between this vegetation type and the Lolio-Cynosuretum (MG6).

The sampled vegetation is best assigned to the *Holcus lanatus-Trifolium repens* sub-community of U4, based on the high occurrence of *Trifolium repens* in the recorded data. Other species of note include *Holcus lanatus, Prunella vulgaris Cynosurus cristatus* and *Bellis perennis*.

The herb cover in all of the sampled quadrats was 100%, with bryophyte cover at very low levels. The community did not appear to be very heavily grazed in any of the sites, accounting perhaps for the high herb height.

Habitat

The mesotrophic character of the *Holcus-Trifolium* sub-community reflects a reasonably fertile soil, characteristically of the brown earth variety.

Distribution within the study area

This community was recorded exclusively in Co. Donegal, (in Lettermacaward/Clooney and in Melmore/Tranarossan) but it is a common community throughout the west of Ireland on free-draining brown earths.

Affinities

This community is transitional between the U4b and the MG6b (Lolio-Cynosuretum, *Anthoxanthum* sub-community). It has elements of both comunities but on balance it is placed in the *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland. The absence of *Galium saxatile* from the recorded data and the strong occurrence of *Cynsourus cristatus* indicates the trend towards mesotrophic grassland. The presence of *Festuca ovina* in this community, however, is significant and justifies inclusion in the U4b (*Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, *Holcus-Trifolium* sub-community)

BOG AND MIRE COMMUNITIES

M2

Sphagnum cuspidatum-recurvum bog pool community

Synonymy

Sphagnum recurvum-Erica tetralix nodum Tallis 1973

Constant species

Eriophorum angustifolium, Potentilla erecta, Erica tetralix, Sphagnum recurvum, Anagallis tenella, Anthoxanthum odoratum, Hypnum cupressiforme, Carex nigra

Species of note

Empetrum nigrum

Floristic composition and structure

This community is characteristically composed of lawns of *Sphagnum recurvum* or *Sphagnum capillifolium*, interspersed with *Eriophorum angustifolium, Potentilla erecta* and *Erica tetralix*. Other species of note include *Anagallis tenella* and *Carex nigra*. *Anthoxanthum odoratum* and *Hypnum cupressiforme* also gain reasonable representation here. Herb height rarely exceeds 30 cm and the average number of species per quadrat is typically low, at 15. *Empetrum nigrum* was present at a cover/abundance of 9 (Domin scale) in one of the quadrats.

All of the vegetation sampled in this community is ascribable to the *Sphagnum recurvum* sub-community (M2b).

Habitat

This community was found on raw peat in exposed areas of Co. Donegal. The community appears to be quite oligotrophic in nature and one of the samples had a pH of 4.8. The community occurs in highly oceanic, windswept areas and eventually merges with *Calluna vulgaris-Scilla verna* heath (H7).

Distribution within the study area

This community was quite restricted within the study area and was recorded in just two locations. These locations were at Lettermacaward/Clooney and Melmore/Tranarossan, both in highly exposed areas of Co. Donegal.

Affinities

This community has strong floristic links with the *Eriophorum angustifolium* bog pool community (M3) but the high constancy and cover/abundance of *Sphagnum recurvum* serves as a useful distinguishing factor. The sampled vegetation is a close fit with the NVC community M2b, although *Vaccinium oxycoccus* is notable by its absence from this community.

Table M2

Sample number	58	331	59	6	
Herb cover (%)	100	99	50	65	
Herb height, centimetres	20	35	20	12	
Moss cover (%)	70	50	25	80	
Bare soil (including sand)	0	0	0	0	
Open water (%)	0	0	0	0	
Slope, degrees	0	0	0	0	
pH	–	–	–	4.8	
					Constancy
Eriophorum angustifolium	2	8	6	6	V
Potentilla erecta	3	3	4	4	V
Erica tetralix	4	4	2	5	V
Sphagnum recurvum	8	6	6	1	V
Anagallis tenella		3	3	3	IV
Anthoxanthum odoratum		3	3	2	IV
Hypnum cupressiforme		3	3	3	IV
Carex nigra	2		3	1	IV
Drosera rotundifolia	2	2			III
Potamogeton polygonifolius	1	2			III
Hydrocotyle vulgaris		3	2		III
Trifolium repens		2	2		III
Carex panicea	2			3	III
Polygala serpyllifolia			4	3	III
Odontoschisma sphagni			2	3	III
Calluna vulgaris		5		5	III
Festuca rubra	5				II
Narthecium ossifragum	8				II
Pedicularis palustris		2			II
Aulacomnium palustre		4			II
Sphagnum subnitens		4			II
Agrostis stolonifera		3			II
Scapania sp		4			II
Empetrum nigrum nigrum			9		II
Festuca ovina			3		II
Peltigera canina			3		II
Sphagnum capillifolium				7	II
Nardus stricta				6	II
Agrostis canina				1	II
Molinia caerulea				2	II
Danthonia decumbens				1	II
Sphagnum palustre				2	II
Sphagnum papillosum				3	II
Sphagnum tenellum				3	II
Number of species	10	17	15	20	Mean = 15

M10

Carex dioica-Pinguicula vulgaris mire

Synonymy

Pinguiculo-Caricetum dioicae Jones 1973 *emend.*

Constant species

Molinia caerulea, Potentilla erecta, Agrostis stolonifera, Succisa pratensis, Carex demissa, Juncus bulbosus, Cirsium dissectum, Carex panicea, Anagallis tenella, Campylium stellatum, Carex pulicaris, Fissidens adianthoides, Ranunculus flammula

Species of note

Platanthera chlorantha, Lotus uliginosus

Floristic composition and structure

Species which define the community are sedges such as *Carex panicea, Carex pulicaris* and *Carex demissa* and the bryophytes *Campylium stellatum, Drepanocladus revolvens* and *Fissidens adianthoides*. Other sedge species recorded in this community include *Carex flacca, Carex hostiana* and *Carex echinata*. *Succisa pratensis, Potentilla erecta and Agrostis stolonifera* are all well-represented in the community, while *Molinia caerulea* is typically the most dominant grass species here. *Eleocharis multicaulis, Anagallis tenella* and *Ranunculus flammula* are very common in flush communities in the west of Ireland (Bleasdale & Conaghan 1995) and attain high constancy in this community. The appearance of this community is characterised by the sedge component of the sward and *Molinia caerulea* is usually intermixed throughout. In the sampled community, the herb height did not exceed 40cm and the average number of species was 27 per quadrat.

Two sub-communities were recorded during this study: the *Carex demissa-Juncus bulbosus/kochii* sub-community (3 quadrats) and the *Briza media-Primula farinosa* sub-community (1 quadrat). The former sub-community represents the least

calcicolous type of Pinguiculo-Caricetum dioicae community and the presence here of *Erica tetralix*, *Carex panicea*, *Carex demissa*, *Eleocharis multicaulis* and *Anagallis tenella* bear testament to this. The latter sub-community is typically more species-rich and has a higher constancy of calcicole species and mesotrophic herbs. Species of note here include *Briza media*, *Pinguicula vulgaris*, *Eleocharis quinqueflora*, *Schoenus nigricans*, *Cratoneuron filicinum*, *Selaginella selaginoides*, *Ctenidium molluscum*, *Prunella vulgaris*, and *Lotus uliginosus*. *Primula farinosa* has been recorded from this community in Great Britain but this species is not present in Ireland. It may be appropriate to rename this sub-community the *Briza media* sub-community, due to the restrictive nature of the geographical distribution of *Primula farinosa*.

Habitat

This community is typically found on mineral soils and shallow peats that are periodically flushed by oligotrophic to base-rich water. The pH of the water is usually quite high, according to the literature (cf. McVean & Ratcliffe 1962), and results in a characteristic floristic composition of sedges and bryophyte species. The extent of flushing, the pH of the flushing water and the amount of dissolved calcium in the water determines the precise floristic composition of the community.

Distribution within the study area

Only four quadrats were assigned to this community in the study area. These quadrats were recorded at Lettermacaward/Clooney, Sheskinmore (both in Co. Donegal) and at Dogs Bay, Co. Galway.

Affinities

This community is best assigned to the Pinguiculo-Caricetum dioicae Jones 1973 *emend.*, although the *Carex demissa-Juncus bulbosus* sub-community has strong floristic affinities with Oxycocco-Sphagnetea vegetation. The presence of *Molinia caerulea* and *Cirsium dissectum* also show that the community approaches the Cirsio-Molinietum caeruleae (M24) in some instances. The *Briza media* sub-community shows a strong continuity with Mesobromnion swards and emphasises the drier nature of this sub-community.

Table M10

Sample number	417 a	1202 a	1204 a	516 b	
Herb cover (%)	100	75	90	95	
Herb height, centimetres	40	6	4	20	
Moss cover (%)	2	40	10	60	
Bare soil (including sand)	0	0	3	0	
Bare rock (%)	0	2	0	0	
Slope, degrees	0	0	3	0	
Aspect, degrees	0	0	160	0	
					Constancy
Molinia caerulea	5	5	5	2	V
Succisa pratensis	3	3	3	7	V
Agrostis stolonifera	3	3	3	3	V
Potentilla erecta	2	3	2	2	V
Cirsium dissectum	4	3	1		IV
Carex demissa	2	4	4		IV
Juncus bulbosus	2	3	3		IV
Carex panicea	3	5	5		IV
Anagallis tenella	3	4	3		IV
Campylium stellatum	3	5	3		IV
Carex pulicaris	2	2		3	IV
Fissidens adianthoides		3	3	3	IV
Ranunculus flammula		3	2	1	IV
Calliergon cuspidatum	5		3		III
Senecio aquaticus	2	2			III
Hydrocotyle vulgaris		4	2		III
Eleocharis multicaulis		5	8		III
Erica tetralix		4	4		III
Juncus articulatus		3	1		III
Leontodon autumnalis		4		1	III
Plantago maritima		3		2	III
Drepanocladus revolvens		5		3	III
Salix repens agg		4		3	III
Danthonia decumbens			3	2	III
Carex nigra	4			4	III
Anthoxanthum odoratum	3			3	III
Carex echinata	3				II
Carex flacca	4				II
Carex hostiana	3				II
Dactylorhiza fuchsii	2				II
Juncus acutiflorus	5				II
Potentilla palustris	2				II
Rumex acetosa	3				II
Brachythecium rutabulum	3				II
Rhytidiadelphus squarrosus	2				II
Aneura pinguis	4				II
Bryum sp	3				II
Taraxacum officinale agg	2				II
Filipendula ulmaria	2				II
Mentha aquatica	2				II
Platanthera chlorantha	2				II
Bellis perennis		3			II
Nardus stricta		4			II
Pedicularis palustris		3			II
Hypnum cupressiforme			3		II
Agrostis capillaris			3		II
Calluna vulgaris			2		II
Narthecium ossifragum			5		II
Briza media				3	II
Eleocharis quinqueflora				1	II
Equisteum palustre				3	II
Parnassia palustris				2	II
Listera ovata				2	II
Pinguicula vulgaris				1	II
Schoenus nigricans				3	II
Prunella vulgaris				1	II
Trifolium pratense				3	II
Calliergon cordifolium				4	II
Cratoneuron filicinum				2	II
Centaurea nigra				3	II
Cynosurus cristatus				2	II
Cerastium fontanum				1	II
Lotus uliginosus				2	II
Selaginella selaginoides				1	II
Trifolium repens				4	II
Bryum pseudotriquetrum				2	II
Ctenidium molluscum				7	II
Number of species	30	25	22	32	Mean = 27

M13

Schoenus nigricans-Juncus subnodulosus mire

Synonymy

Schoenetum nigricantis Koch 1926; Schoenetum nigricantis Dierssen 1982

Constant species

Hydrocotyle vulgaris, Mentha aquatica, Agrostis stolonifera, Carex lepidocarpa, Campylium stellatum, Anagallis tenella

Species of note

Oenanthe lachenali, Platanthera chlorantha,

Floristic composition and structure

The vegetation presented on Table M13 can be divided into two components, a *Juncus subnodulosus*-dominated community (quadrats 1307, 1286, 1294 and 1358) and a *Schoenus nigricans*-dominated community (quadrats 1293, 532, 519, 78 and 495). Quadrat 1293 is, in fact, transitional between both communities. The quadrats in the *Schoenus nigricans* community are a good example of Schoenetum nigricantis mire, while the former community is in fact a precursor to the Schoenetum nigricantis and is best accommodated in this table. The relationship between these communities is emphasised by quadrat 1293, which has a co-dominance of *Schoenus* and *Juncus subnodulosus*.

Constant species in both communities are *Hydrocotyle vulgaris, Mentha aquatica, Agrostis stolonifera, Carex lepidocarpa, Campylium stellatum* and *Anagallis tenalla*. The *Juncus subnodulosus*-dominated community has a higher proportion of open water than the *Schoenus nigricans* community and the structure is markedly different. *Juncus subnodulosus* is a tall plant which adds greatly to the overall herb height of this community.

The *Juncus subnodulosus*-dominated community has an associated flora comprising *Phragmites australis, Menyanthes trifoliata* and *Oenanthe lachenalii*. The average number of species per quadrat in this community is quite low, at 15 species per sample.

Species of high constancy in the *Schoenus*-dominated community (or Schoenetum nigricantis proper) include *Carex panicea, Succisa pratensis, Holcus lanatus* and a host of other associates. The average number of species per sample in this community is higher (at 27 species per sample) than the *Juncus subnodulosus*-dominated community.

Habitat

As previously mentioned, the amount of standing water is proportionally higher in the *Juncus subnodulosus*-dominated community than in the *Schoenus*-dominated community and this is probably a reflection of a higher water table in the former community.

The pH values from both the *Juncus sunodulosus*- and the *Schoenus nigricans*-dominated communities fall in a range of pH 7-8.5. Both communities are found in areas that are irrigated by what is assumed to be highly calcareous and oligotrophic water, which has a crucial role to play in the specific floristic composition of these communities.

Distribution within the study area

This community has its major locus in the study area in Mannin Bay, Co. Galway, where there is quite an extensive area of this vegetation type. Other examples of the communitiy are located in Sheskinmore and Melmore/Tranarossan, Co. Donegal. All of these sites are very flat and have areas where the water table is quite high. In all cases, the community is found only marginally above sea-level, but is protected from a saline influence by dunes or hills.

Affinities

The *Schoenus*-dominated community can be accommodated in both the Schoenetum nigricantis Koch 1926 and the Schoenetum nigricantis Dierssen 1982 and is compatible with the *Schoenus nigricans-Juncus subnodulosus* mire (M13). The most

appropriate sub-community of M13 is the *Briza media-Pinguicula vulgaris* sub-community (M13b), although both of these species are poorly represented here. The *Juncus subnodulosus* community included in Table M13 is difficult to classify satisfactorily. It has some affinities with the Schoenetum nigricantis Koch 1926 but also has floristic links with the Peucedano-Phragmitetum australis Wheeler 1978 *emend.* (S24).

Table M13

Number	1307	1286	1294	1358	1293	532	519	78	495	
Herb cover (%)	80	90	95	80	95	90	80	85	80	
Herb height, centimetres	120	80	100	95	120	55	20	20	12	
Moss cover (%)	50	0	80	85	75	10	60	35	60	
Bare soil (including sand)	0	0	0	0	0	0	2	10	2	
Open water (%)	70	100	0	5	0	0	0	0	0	
Slope, degrees	0	0	0	0	0	0	0	20	5	
Aspect, degrees	0	0	0	0	0	0	0	200	10	
pH	–	7.49	–	–	–	–	–	8.5	7	
										Const.
Hydrocotyle vulgaris	2	4	2	3	3	3	4	3		V
Mentha aquatica	3	4	4	3	4		2			IV
Agrostis stolonifera	4	3	4		3	4	3	2		IV
Carex lepidocarpa		3	3	2	3		2		4	IV
Campylium stellatum	4		5		8		4	3	6	IV
Anagallis tenella		3		4	3		3	4	5	IV
Juncus subnodulosus	8	8	8	9	5					III
Phragmites australis	3	4	3		4					III
Menyanthes trifoliata		4	4	3	5					III
Oenanthe lachenalii	4	2		3	2					III
Pedicularis palustris	4			3			2			II
Scorpidium scorpioides	3			10						II
Lythrum salicaria	3		3							II
Potamogeton polygonifolius	3	4							4	II
Utricularia intermedia	3	5								II
Chara sp	3	4								II
Schoenus nigricans					8	6	3	8	3	III
Carex panicea					3	3	5	3	5	III
Succisa pratensis					2	3		5	2	III
Ctenidium molluscum					5		7	5		II
Holcus lanatus			3		2	3	3		3	III
Calliergon cuspidatum			6			6	3		4	III
Ranunculus flammula	1				3		1		3	III
Bellis perennis							2	5	1	II
Carex nigra						7	5		3	II
Leontodon autumnalis						2	3	3		II
Plantago maritima							3	3		II
Danthonia decumbens						2	2		2	II
Trifolium pratense						4	2	2	3	III
Drepanocladus revolvens						4	4		4	II
Festuca rubra						4	3	3		II
Plantago lanceolata						3	2	3		II
Parnassia palustris						1	3		2	II
Potentilla anserina						3	2		4	II
Trifolium repens						3	3		3	II
Prunella vulgaris							3	4	3	II
Salix repens agg						4	3			II
Taraxacum officinale agg						2	2			II
Centaurea nigra						4	1			II
Dactylorhiza incarnata							2		1	II
Triglochin palustre							1		3	II
Pinguicula vulgaris							2	3		II
Selaginella selaginoides							1	2		II
Galium palustre			3			2				II
Rhinanthus minor				1		3				II

Table M13 (cont'd)

Number	1307	1286	1294	1358	1293	532	519	78	495	Const
Apium nodiflorum	3									I
Carex diandra	2									I
Carex elata	4									I
Calliergon giganteum	3									I
Juncus articulatus	2									I
Eurhynchium praelongum	3									I
Baldellia ranunculoides		3								I
Samolus valerandi		4								I
Berula erecta		5								I
Angelica sylvestris			5							I
Carex paniculata			4							I
Brachythecium rutabulum			4							I
Drepanocladus uncinatus			4							I
Lophocolea bidentata			3							I
Poa annua				1						I
Fissidens adianthoides					3					I
Filipendula ulmaria						5				I
Briza media						3				I
Carex pulicaris						3				I
Molinia caerulea						3				I
Luzula campestris						2				I
Platanthera chlorantha							2			I
Cynosurus cristatus							2			I
Equisetum palustre							1			I
Ranunculus acris							4			I
Euphrasia officinalis agg								2		I
Galium verum								1		I
Hypochoeris radicata								1		I
Linum catharticum								3		I
Lotus corniculatus								4		I
Hypnum cupressiforme								2		I
Pilosella officinarum agg								3		I
Polygala serpyllifolia								2		I
Thymus praecox arcticus								3		I
Vicia cracca								1		I
Homalothecium lutescens								1		I
Eleocharis quinqueflora									5	I
Epilobium palustre									4	I
Cirsium dissectum									4	I
Eriophorum angustifolium									2	I
Festuca ovina									3	I
Number of species	20	12	17	11	17	27	37	28	26	Mn=22

M23

Juncus effusus/acutiflorus-Galium palustre rush pasture

Synonymy

Junco acutiflori-Molinietum O'Sullivan 1968

Defining species

Juncus effusus, Holcus lanatus

Floristic composition and structure

Juncus effusus and *Holcus lanatus* together define this community. *Juncus effusus* is moderately well-represented within this quadrat and the ground flora is composed of a combination of *Holcus lanatus, Carex* spp., *Trifolium repens* and, notably, *Molinia caerulea*. *Galium palustre* is notable by its absence from this community. Moss species of note include *Rhytidiadelphus squarrosus* and *Pseudoscleropodium purum*. The herb cover is complete here and herb height is the upper limit of *Juncus effusus*, the tallest plant in this community.

This single quadrat is tentatively assigned to the *Juncus effusus* sub-community (M23b) of *Juncus effusus/acutiflorus-Galium palustre* rush pasture.

Habitat

This community is characteristic of ill-drained and unimproved or reverted pasture on moist, moderately acid to neutral soils in the lowlands of Britain and Ireland. It is usually continuous with mesotrophic grasslands which are better drained and have a higher inherent soil fertility.

Distribution within the study area

This community was recorded in one location in the study area, at Lettermacaward/Clooney, Co. Donegal.

Affinities

This is a poorly defined community in which *Juncus effusus* or *Juncus acutiflorus* are the characteristic species. The most consistent associate is *Holcus lanatus*, which gives the understorey the appearance of a mesotrophic grassland. The community has strong affinities with the Junco acutiflori-Molinietum O'Sullivan 1968, a community which has previously been described in the west of Ireland. It has been suggested that *Juncus acutiflorus* is particularly well-represented in the west of Ireland but *Juncus effusus* is the only rush species in the sampled vegetation. The community also has floristic links with the Holco-Juncetum, a community of gley soils in lowland areas. The solitary quadrat recorded in the study area is a reasonable fit with the NVC sub-community M23b, but it would be inappropriate to make any categorical statements to this effect without a larger data set.

Table M23

Sample number	433	
Herb cover (%)	100	
Herb height, centimetres	50	
Moss cover (%)	10	
Bare soil (including sand)	0	
Open water (%)	0	
Slope, degrees	0	
		Constancy
Molinia caerulea	7	V
Juncus effusus	5	V
Carex flacca	2	V
Carex nigra	2	V
Cerastium fontanum	3	V
Epilobium palustre	1	V
Festuca rubra	3	V
Holcus lanatus	3	V
Leontodon autumnalis	3	V
Lotus corniculatus	3	V
Lychnis flos-cuculi	3	V
Plantago lanceolata	3	V
Ranunculus repens	2	V
Trifolium repens	4	V
Calliergon cuspidatum	4	V
Pseudoscleropodium purum	3	V
Rhytidiadelphus squarrosus	5	V
Cirsium dissectum	1	V
Taraxacum officinale agg.	2	V
Number of species	19	

M24

Molinia caerulea-Cirsium dissectum fen meadow

Synonymy

Cirsio-Molinietum caeruleae Sissingh & De Vries 1942 *emend.*

Constant species

Molinia caerulea, Schoenus nigricans, Potentilla erecta, Cirsium dissectum, Carex panicea, Eriophorum angustifolium

Floristic composition and structure

Molinia caerulea, Schoenus nigricans and *Potentilla erecta* all occur in more than 80% of the quadrats and essentially define the community. *Cirsium dissectum, Carex panicea* and *Eriophorum angustifolium* also attain high constancies in this community. The high constancy of *Schoenus nigricans* is noteworthy, as it is not noted in such frequency in analagous vegetation recorded in Britain.

Quadrats 5, 263, 1203, 129 and 323 are quite similar to M24c (the *Juncus acutiflorus-Erica tetralix* sub-community) based on the high occurrence here of *Erica tetralix, Hypnum cupressiforme* and *Narthecium ossifragum*. The remainder of the data does not fit neatly into any of the sub-communities described in the NVC, but is perhaps most similar to M28b (the typical sub-community).

Herb cover is in excess of 70% in all of the sampled quadrats and herb height varies from 5 cm to 80 cm.

Habitat

The pH range in the recorded data is from 5.7 to 6.6. The community is found on moist to dry peats and peaty mineral soils.

Distribution within the study area

This community does not occupy a large physical area in any of the sites where it was recorded. It is, however, quite widespread in geographical terms and was recorded in Lettermacaward/Clooney, Sheskinmore, Lunniagh, Melmore/Tranarossan, (all in Co. Donegal), Dooaghtry, (Co. Mayo) and in Dogs Bay (Co. Galway).

Affinities

The quadrats presented in Table M24 are assigned to the *Molinia caerulea-Cirsium dissectum* fen meadow, which is synonymous with the Cirsio-Molinietum caeruleae Sissingh & De Vries 1942 *emend.* The sampled community does not allign neatly with any of the sub-communities described in M24 in the NVC and there may be justification in erecting a new sub-community dominated by *Schoenus nigricans*. The broader ecological amplitude of *Schoenus nigricans* in Ireland may explain the strong dominance of *Schoenus* in this community. The community, in many respects, is transitional between the Schoenetum nigricantis (M13) and the Cirsio-Molinietum caeruleae (M28) but the co-dominance here, in most cases, of *Molinia caerulea* and *Cirsium dissectum*, justifies the assignation of the quadrat data to M24.

Table M24

Sample number	5	263	1203	129	323	326	328	432	493	492	1142	556	
Herb cover (%)	100	85	80	100	85	95	100	75	70	100	90	100	
Herb height, centimetres	35	5	50	60	50	15	20	20	30	40	8	80	
Moss cover (%)	0	5	35	2	40	10	10	5	70	15	60	5	
Bare soil (including sand)	0	25	10	0	0	10	0	0	0	0	2	0	
Bare rock (%)	0	0	0	0	0	0	10	0	0	0	0	0	
Open water (%)	0	0	0	0	0	0	0	0	0	0	0	0	
Slope, degrees	30	2	0	20	0	5	0	0	0	3	0	0	
Aspect, degrees	270	90	0	360	0	280	0	0	0	280	0	0	
pH	6.5	5.7	–	–	–	–	–	–	–	–	6.6	–	
													Const.
Molinia caerulea	7	7	5		4	6	5	7	5	7	4	9	V
Schoenus nigricans	7	6	7	10	8	5		5	3	7	8	6	V
Potentilla erecta	3		3	3	4	4	3	4	4	5		3	V
Carex panicea	3	6			4	4	5	3	4		5	3	IV
Eriophorum angustifolium	4		3	4	4	3	4	4	6		2		IV
Cirsium dissectum				3	5	6	7	2	2	5	4		IV
Erica tetralix	2	3	5	3	5			4	3				III
Plantago maritima	2	3			3	2			2	3	2		III
Anagallis tenella		2	4		3		4			2	5		III
Narthecium ossifragum			3	3	3			3	4	3			III
Succisa pratensis		4	3	3				3			4	3	III
Agrostis canina								3	3	4	3	4	III
Calluna vulgaris			3		4	4		3	4				III
Carex demissa	2	3			4		4				4		III
Hydrocotyle vulgaris	2		3		3		6		4				III
Ranunculus flammula	1		2		2	4					2		III
Hypnum cupressiforme		3	3	3	3			3					III
Carex pulicaris	1						2		3			2	II
Prunella vulgaris	4								2	3	2		II
Calliergon cuspidatum			3	3			5					4	II
Campylium stellatum			3				3				6	3	II
Rhytidiadelphus squarrosus	2					2		2		2			II
Pedicularis sylvatica								2	3	1			II
Phragmites australis			2							2		3	II
Trifolium repens	1								2	2			II
Dicranum scoparium						5		2	3				II
Agrostis stolonifera				2							2		I
Anthoxanthum odoratum						3		3					I
Carex echinata									6			2	I
Carex flacca										3		3	I
Dactylorhiza maculata ericetor								1	2				I
Festuca ovina	4					4							I
Holcus lanatus	3					2							I
Myrica gale								6				5	I
Plantago lanceolata	4								3				I
Polygala serpyllifolia		1				2							I
Ranunculus acris							3				1		I
Senecio aquaticus							1					2	I
Danthonia decumbens									1		3		I
Triglochin palustre		2					2						I
Viola palustris	1											2	I
Brachythecium rutabulum				2								2	I
Eurhynchium praelongum	3									4			I
Sphagnum subnitens			5		5								I
Aneura pinguis				2						1			I
Saccogyna viticulosa				2	3								I
Bryum sp				2		3							I
Angelica sylvestris												2	I
Carex distans		3											I

Table M24 (cont'd)

Sample number	5	263	1203	129	323	326	328	432	493	492	1142	556	Const
Carex hostiana								3					I
Drosera rotundifolia			2										I
Eleocharis multicaulis									3				I
Eleocharis palustris							4						I
Equisetum fluviatile												3	I
Erica cinerea						3							I
Euphrasia officinalis agg											1		I
Festuca rubra		3											I
Filipendula ulmaria												3	I
Galium palustre												2	I
Gentianella campestris											1		I
Leontodon autumnalis											3		I
Leontodon taraxacoides											3		I
Lotus corniculatus		3											I
Nardus stricta											3		I
Pedicularis palustris						2							I
Pinguicula vulgaris									2				I
Potamogeton polygonifolius			3										I
Salix repens agg.	2												I
Selaginella selaginoides											3		I
Thymus praecox arcticus	2												I
Viola riviniana	2												I
Breutelia chrysocoma											2		I
Ctenidium molluscum											5		I
Ditrichum flexicaule											2		I
Fissidens adianthoides											3		I
Pseudoscleropodium purum										3			I
Scorpidium scorpioides			2										I
Sphagnum capillifolium									8				I
Sphagnum contortum				2									I
Sphagnum palustre					4								I
Sphagnum recurvum				3									I
Calypogeia muelleriana										1			I
Sphagnum auriculatum			3										I
Taraxacum officinale agg.											1		I
Frullania sp		5											I
Number of species	22	15	20	16	18	18	15	19	24	18	27	20	M=19

96502.13

96913.11

M28

Iris pseudacorus-Filipendula ulmaria mire

Synonymy

Filipendulo-Iridetum pseudacori Adam 1976 *emend.*

Constant species

Agrostis stolonifera, Iris pseudacorus, Filipendula ulmaria, Ranunculus acris.

Species of note

Calystegia sepium, Carex diandra

Floristic composition and structure

Constant species in this community include *Agrostis stolonifera, Iris pseudacorus, Filipendula ulmaris* and *Ranunculus acris. Iris pseudacorus* and *Filipendula ulmaria* are the species which most precisely characterise the community. Two sub-communities are identified, namely the *Juncus* spp. sub-community (quadrats 26, 25, 306 and 302) and the *Urtica dioica-Galium aparine* sub-community (quadrat 639). The mean number of species in the community proper is 16 species per sample.

The *Juncus effusus-J. acutiflorus* sub-community (M28a) in the sampled data is characterised by a high constancy of *Ranunculus acris, Equisteum fluviatile, Phragmites australis* and *Calliergon cuspidatum*. Other defining species include *Juncus effusus* (only in one quadrat), *Caltha palustris* and *Poa trivialis*. Of particular note here is the high constancy of *Phragmites australis*, which marks a transition to swamp vegetation.

Quadrat 639 is best assigned to the *Urtica dioica-Galium aparine* sub-community (M28b), although it is difficult to ascribe any confidence to this designation on the basis of one quadrat. The presence of *Urtica dioica, Arrhenatherum elatius* and *Plantago lanceolata* here, and the absence of *Ranunculus repens*, suggest that this quadrat is best accommodated in M28b. This quadrat also

has swamp components, however, with *Carex diandra* and *Sparganium erectum* attaining representation here. The presence of *Calystegia sepium* in this sub-community is noteworthy.

Habitat

This community is interesting in that it represents a transition between swamp vegetation and Molinio-Arrhenatheretea damp grassland. Although *Iris* has a high constancy within the community, the community is not to be confused with *Iris*-dominant stands which are best accommodated in SX2. The *Iris pseudacorus-Filipendula ulmaria* mire is a community experiencing strong maritime influence and in some cases the community is continuous with strandline vegetation.

Distribution within the study area

This community was recorded exclusively in Co. Donegal and Co. Sligo, in Melmore/Tranarossan, Keadue and Bunduff/Trawlua, respectively. In total, five quadrats were sampled from this community.

Affinities

The community is assigned to the *Iris pseudacorus-Filipendula ulmaria* mire (M28), which is a synonym of the Filipendulo-Iridetum pseudacori Adam 1976 *emend.* Floristic links with the *Filipendula ulmaria-Angelica sylvestris* mire (M27) are also possible.

Table M28

Sample number	26 a	25 a	306 a	302 a	639 b	
Herb cover (%)	90	90	95	100	100	
Herb height, centimetres	40	25	35	35	130	
Moss cover (%)	1	50	5	0	0	
Bare soil (including sand)	10	5	0	0	0	
pH	6	–	–	–	–	
						Constancy
Agrostis stolonifera	3	4	8	5	3	V
Iris pseudacorus	6	3		4	3	IV
Filipendula ulmaria	7	7	4		8	IV
Ranunculus acris	3	4	1	5		IV
Equisetum fluviatile	3			6	3	III
Phragmites australis	5	8	4			III
Calliergon cuspidatum	6	3	4			III
Cardamine pratensis	4	3	1			III
Mentha aquatica			2	2	3	III
Poa trivialis	3	2			4	III
Rumex acetosa	2	1			2	III
Holcus lanatus	5				4	II
Anthoxanthum odoratum	4			6		II
Caltha palustris	6			3		II
Carex nigra			2	5		II
Equisetum palustre	3			7		II
Vicia sepium		3			4	II
Angelica sylvestris	3					I
Galium palustre	2					I
Hypericum tetrapterum	2					I
Juncus effusus	4					I
Poa pratensis	2					I
Polygonum persicaria	4					I
Prunella vulgaris	2					I
Trifolium repens	3					I
Vicia cracca	4					I
Plagiomnium rostratum	3					I
Lophocolea bidentata	5					I
Brachythecium rutabulum		6				I
Rhytidiadelphus squarrosus		2				I
Lythrum salicaria		3				I
Polygonum amphibium			3			I
Potentilla palustris			3			I
Festuca rubra				5		I
Plantago lanceolata				2		I
Lathyrus pratensis					4	I
Ranunculus repens					2	I
Sparganium erectum					3	I
Urtica dioica					2	I
Arrhenatherum elatius					4	I
Calystegia sepium					5	I
Carex diandra					5	I
Epilobium hirsutum					4	I
Dactylorhiza fuchsii					1	I
Number of species	25	13	10	12	18	Mean=16

96903.23

M29

Hypericum elodes-Potamogeton polygonifolius soakway

Synonymy

Hyperico-Potametum polygonifolii (Allorge 1921) Braun-Blanquet & Tuxen 1952

Constant species

Hypericum elodes, Potamogeton polygonifolius, Ranunculus flammula, Hydrocotyle vulgaris, Anagallis tenella, Carex demissa

Floristic composition and structure

This community is readily identifiable in the field by the ubiquitous presence of *Hypericum elodes* and *Potamogeton polygonifolius*. *Ranunculus flammula, Hydrocotyle vulgaris, Anagallis tenella* and *Carex demissa* also attain high constancies here.

Habitat

This community is characteristic of shallow soakways, runnels and pools in peats which have fluctuating water tables. The water is typically fresh and clear, with relatively low pH (4-5.5) (Rodwell 1991).

Distribution within the study area

This community was recorded in one location, at Melmore/Tranarossan, Co.Donegal. Two quadrats were recorded in this vegetation type but it is a common and well-represented community in the west of Ireland. The poor representation of this community in the study area is due in part to the lack of suitable substrates.

Affinities

The community is best assigned to the Hyperico-Potametum polygonifolii (Allorge 1921) Braun-Blanquet & Tuxen 1952. which is a synonym for the *Hypericum elodes-Potamogeton polygonifolius* soakway (M29)

Table M29

Sample number	120	64	
Herb cover (%)	55	75	
Herb height, centimetres	3	20	
Moss cover (%)	0	90	
Bare soil (including sand)	55	0	
Open water (%)	0	5	
Slope, degrees	0	0	
			Constancy
Hypericum elodes	4	5	V
Potamogeton polygonifolius	6	3	V
Ranunculus flammula	4	3	V
Hydrocotyle vulgaris	3	4	V
Anagallis tenella	3	3	V
Carex demissa	2	3	V
Carex dioica	3		III
Agrostis stolonifera	2		III
Carex echinata	2		III
Carex panicea	3		III
Eriophorum angustifolium	4		III
Mentha aquatica		3	III
Succisa pratensis		3	III
Pedicularis palustris		3	III
Phragmites australis		3	III
Scirpus fluitans		3	III
Menyanthes trifoliata		8	III
Cirsium dissectum		2	III
Trifolium repens		2	III
Anthoxanthum odoratum		2	III
Carex nigra		3	III
Number of species	11	16	Mean = 14

MX1

Carex nigra-Eriophorum angustifolium mire

Constant species

Carex nigra, Hydrocotyle vulgaris, Ranunculus flammula, Agrostis stolonifera, Drepanocladus revolvens, Anagallis tenella, Eriophorum angustifolium, Juncus articulatus, Mentha aquatica

Species of note

Eriophorum latifolium, Listera ovata, Oenanthe lachenalii, Epipactis palustris

Floristic composition and structure

This is a previously undescribed mire community dominated by *Carex nigra*. Other associates of high constancy include *Hydrocotyle vulgaris, Ranunculus flammula, Agrostis stolonifera, Drepanocladus revolvens, Anagallis tenella, Eriophorum angustifolium, Juncus articulatus* and *Mentha aquatica*. Herb cover is greater than 75% in all but one quadrat in this community, while open water is less than 10%. The herb height is typically less than 100 cm. The community can be divided into a species-rich and a species-poor sub-community, in which average species numbers per sample are greater and less than 20 species per sample, respectively.

The species-rich sub-community (MX1a) has a high constancy of *Campylium stellatum, Holcus lanatus, Equisteum fluviatile, Carex lepidocarpa, Caltha palustris* and *Galium palustre*. The sub-community is a locus for species such as *Eriophorum latifolium* (perhaps the largest population in Ireland occurs at Sheskinmore) and *Epipactis palustris*. The species-poor sub-community has a marked absence of these species, although the previously mentioned constant species are more or less the same.

The average number of species in the community is 21 species per quadrat, although the range is from 12 to 40, encompassing the species-poor and species-rich sub-communities..

Habitat

The range in pH in this community is from 7.6 to 8.0. In a sense this community, and in particular the species-rich sub-community, is transitional between a fen and mire. The character species of the community are more characteristic of mire vegetation, however, and, on balance, the community is given mire status. Based on the species composition, it is assumed that the high water table is composed of relatively calcareous water, which accounts for the high constancy of *Campylium stellatum* etc. The species-poor sub-community has a lower constancy of calcicolous species and this may be due to a difference in the water chemistry of this sub-community. Further research is needed to precisely define the ecological requirements of these two sub-communities.

Distribution within the study area

This community is widely distributed throughout the study area, and was recorded in Cos Donegal, Sligo, Mayo and Galway. A large proportion of the quadrats were recorded in Lunniagh, Sheskinmore and Bunduff/Trawlua but the community was also recorded in Melmore/Tranarossan, Lettermacaward/Clooney, Gartar Hill, Dogs Bay and Mannin Bay.

Affinities

This community has strong affinities with the Pinguiculo-Caricetum dioicae (M10) but is sufficiently distinct to merit the erection of a new community, dominated by *Carex nigra*.

Table MX1

Sample number	491	628	557	518	521	522	524	527	528	654	629	640	662	262	137	710	1272	1288	1313	630	631	9	118	130	177	134	494	125	127	329	1199	
Herb cover (%)	75	90	90	75	80	85	90	90	80	75	75	100	85	90	90	60	80	90	80	90	100	90	90	80	80	95	99	40	100	90	85	
Herb height, centimetres	45	25	40	35	40	40	35	40	35	40	10	30	15	15	20	6	30	35	25	20	30	55	20	15	20	30	25	4	12	15	3	
Moss cover (%)	50	30	30	90	30	100	70	85	65	65	40	20	60	30	70	75	20	70	70	75	10	50	80	10	0	0	0	0		35	55	
Bare soil (including sand)	5	0	0	0	5	0	2	0	2	15	40	0	10	5	0	10	0	0	0	10	0	8	5	0	10	0	0	60	0	0	10	
Open water (%)	10	0	10	0	10	0	0	10	5	0	0	0	0	10	0	0	10	10	0	0	0	0	0	0	10	3	0	2	0	0	0	
Slope, degrees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	2	0	5	3	0	5	3	0	0	
Aspect, degrees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	310	180	0	0	0	0	0	0	220	0	200	10	0	320	40	0	0	
pH	-	-	-	-	-	-	-	-	-	7.6	-	-	-	-	7.6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carex nigra	5	5		5	3		5	4		6	5	7	8	5	6	5	6	5	7	5	9	2	7	8	6	8		4	3	4		V
Hydrocotyle vulgaris	6	5	4	3	4	3	4	3	2	4		5	4	3	4	5		5	4		5	5	4	3	4			3	5	5	3	IV
Ranunculus flammula	3	3	3	2	4	2	3	3	3	3	3	4	3		2	2	2		2	3	3	2		3	3		4	3	4	3	3	IV
Agrostis stolonifera		3	3	5	4	4	4	3	3	4	5	4		3	3	5		3	3		3	4	3		6	5	5				4	IV
Drepanocladus revolvens		3	5	3		4	7	6	5	2	3	4	8	4	5	8	6	7	7		6		8		5	3						IV
Anagallis tenella	4	3	4		3		3	2	3	2	3	3	3	2	3	4	5	5	4				3	2	4	4		4		4	5	IV
Eriophorum angustifolium	3		4	4		2	1	8	1	4	4	4		6	5		5	7		6		8	5	2	3	3	7	2	7	7	2	IV
Juncus articulatus		6		2	3		3		2	4	5	6	3	3		3	3	4	3	5		1			7		4					IV
Mentha aquatica			3		4		3		3	3	3	3	3	3	4		3	5	4		4		3			6	4			3	3	IV
Campylium stellatum		3	3	3	3	8	5	7	6	5	6	5		6				4	7	3												III
Holcus lanatus	3	4	4	3	1	2	3	2	2		2	3			3		2	3						2								III
Equisetum fluviatile		6	5	2	3	3	3			5	3	2					3		3	2	1				3							III
Carex lepidocarpa			3	3	3	5	4	5	3		3	5							4	6	4						3					III
Menyanthes trifoliata						7	2	4	2	6			2				7			4	3			3	2							III
Caltha palustris			3	3	3	3		3		5	3		3	3	3						1					4						III
Galium palustre	2	3	2		2	3	2	2			2	3	3				3		2			3								3		III
Cardamine pratensis	1			1				2	1		2				4	4		2				3				1				4		II
Samolus valerandi	3	1								3	2	2		1	3			2	3				3			2						II
Calliergon cuspidatum	6	4		8	6	4			3	6	5											7			3						3	II
Equisetum palustre		3		6	5	6	4	4	3	5						3										3						II
Pedicularis palustris					2		2		3	2			2	1	2										2	2				3		II
Bryum pseudotriquetrum	4		4				2		2									4					3	3	4	4				5		II
Carex panicea									3	2	1		3	5	4			4	3						4				5	6	3	5	II
Triglochin palustre	2		4		2			2			2	2		1		3				3												II
Carex dioica		2		3	3	3				2	2	3			4																	II
Cerastium fontanum			4	3	1		2	1				3			3																	II
Epilobium palustre	1		2			2	3	3			1						2	3														II
Potamogeton polygonifolius	4																2		2				4	7			4	5		5		II
Potentilla palustris										2		2	2							3	1	5					3					II
Trifolium repens		3			2				2		3	4	2																			II
Aneura pinguis	3										3			2		3							2		3				3			II
Bellis perennis	1	3					2							2	4										2					3		I
Carex demissa	4											4			2						3						2	2	4	3		I
Carex flacca							3								3	3							4		2	2			2			I
Dactylorhiza incarnata			1	1		2	1	1																	3							I
Epilobium parviflorum				2	1	1	2								2		2															I
Parnassia palustris					1		3		3		3			2	3																	I
Pinguicula vulgaris				3			2		2			3											3		3							I
Ranunculus acris		3			3		2		1											4						2						I
Sagina nodosa							3		1	3						3		2					1									I
Selaginella selaginoides		2					1		2					1		2							2									I
Festuca rubra				4		3	4									3							1									I
Philonotis fontana							2				4					5																I
Eleocharis palustris					6						3			1								2										I
Eleocharis quinqueflora													3	2					3	3												I
Epipactis palustris		1				4	3		2																							I
Phragmites australis	6																4	3										2				I
Prunella vulgaris	3	3						2	3																						3	I
Succisa pratensis		5							4	2																5			2		6	I
Anthoxanthum odoratum		2										4																				I
Apium nodiflorum																5	3		2													I
Dactylorhiza fuchsii		4								2		3																				I
Juncus bulbosus	2		4																					3				3	3		3	I
Lychnis flos-cuculi		3				1						3																				I
Scirpus fluitans	3																					1										I
Senecio aquaticus												2	2													2			3	3		I
Briza media					2				3																							I
Carex echinata					1																						2					I
Carex paniculata																		4														I
Carex pulicans		1										2																				I
Carex rostrata			7																													I
Cynosurus cristatus		5			2																											I
Iris pseudacorus																	3					1										I
Lotus corniculatus		3								2																						I
Lythrum salicaria																						5					4					I
Oenanthe lachenalii																	5		1													I
Ranunculus bulbosus						2																					3				3	I
Nasturtium officinale														2		3																I
Danthonia decumbens		3										3																			3	I
Calliergon giganteum																	2															I
Brachythecium rutabulum		2																														I
Ctenidium molluscum		4							5																							I
Scorpidium scorpioides																				8				3								I
Cirsium dissectum																											4		3			I
Chara sp																	4															I
Angelica sylvestris										2																						I
Dactylorhiza maculata																	3															I
Eleocharis multicaulis	3																											4			7	I
Eriophorum latifolium									5																							I
Euphrasia officinalis agg		3																													3	I
Festuca arundinacea																		3														I
Filipendula ulmaria													3																			I
Hypericum tetrapterum												3																				I
Isoetes lacustris																								4								I
Listera ovata		3																														I
Luzula campestris												2																				I
Molinia caerulea																											3					I
Myosotis laxa caespitosa																			1													I
Plantago lanceolata		2																														I
Plantago maritima	2																											3	2		2	I
Platanthera bifolia												2																				I
Poa trivialis												2																				I
Polygala vulgaris		1																														I
Potentilla anserina													2																			I
Salix repens agg.								1																								I
Schoenus nigricans									4																							I
Trifolium pratense		2																														I
Vicia cracca		3																														I
Brachythecium rivulare																		3														I
Drepanocladus aduncus														1				5														I
Fissidens adianthoides									3																						6	I
Hylocomium splendens		2																														I
Hypnum cupressiforme															3																4	I
Mnium hornum																		3														I
Neckera crispa		3																														I
Rhytidiadelphus triquetrus		4																														I
Lophocolea bidentata	3																															I
Salix cinerea ssp oleifolia										2																						I
Taraxacum officinale agg.									1																							I
Number of species	24	40	20	21	27	22	33	21	32	26	27	32	18	21	23	19	22	22	19	13	12	13	17	12	16	16	15	12	12	15	19	

HEATH COMMUNITIES

H7

Calluna vulgaris-Scilla verna heath

Synonymy

Calluno-Scilletum vernae Malloch 1971

Constant species

Calluna vulgaris, Plantago lanceolata, Potentilla erecta, Succisa pratensis, Lotus corniculatus, Plantago maritima, Trifolium repens.

Species of note

Pseudorchis albida, Sesleria albicans, Osmunda regalis, Coeloglossum viride

Floristic composition and structure

Constant species in this community are the following: *Calluna vulgaris, Plantago lanceolata, Potentilla erecta, Succisa pratensis, Lotus corniculatus, Plantago maritima* and *Trifolium repens.* A variety of sub-cmmunities are reconised in Table H7.

Quadrat 93 is assigned to the *Armeria maritima* sub-community (H7a), due to the presence here of *Plantago coronopus, Cerastium diffusum, Aira praecox* and *Thymus praecox.* Although *Armeria* is absent, this quadrat is the most overtly maritime of all the sampled data.

Quadrats 455, 330, 301 and 336 are assigned to the *Empetrum nigrum nigrum* sub-community (H7d). The prominence of *Empetrum nigrum nigrum* here is a diagnostic feature of the sub-community.

Quadrats 4, 7, 57, 1230 and 56 are assigned to the *Calluna vulgaris* sub-community (H7e), as the vegetation does not appear to have any affinities with the other sub-communities. Although this sub-community is referred to as being species poor, this does not appear to be true in this instance. Species of note include *Festuca*

ovina, *Anthoxanthum odoratum*, *Erica cinerea*, *Polygala serpyllifolia*, *Luzula campestris* and *Dactylorhiza maculata*.

The remaining quadrats are assigned to the *Erica tetralix* sub-community (H7c). This sub-community is characterised by a high constancy of *Succisa pratensis*, *Danthonia decumbens*, *Erica tetralix*, *Prunella vulgaris* and *Carex flacca*. *Pseudorchis albida* was recorded in this community at Lunniagh, Co. Donegal.

The shrub cover in this community is quite variable and is a function of the extent of grazing and exposure. The herb cover is usually quite high and the overall appearance of the community is one of a prostrate heath, which is encountered in exposed coastal environments. The average number of species per quadrat for this community is 26.

Habitat

As previously stated, this community is encountered in exposed coastal situations throughout the study area. The range of pH from the sampled soils varies from 5.3 to 6.6 and reflects the acid conditions that prevail here. This community is never far removed from a strong maritime influence and sea and sand spray probably have an influence in the maintenance of this community.

Distribution within the study area

This community has a wide distribution throughout the geographical extent of the study area. *Calluna vulgaris-Scilla verna* heath was recorded in Melmore/Tranarossan, Lunniagh, Lettermacaward/Clooney, Sheskinmore, Keadue (all in Co. Donegal), Bunduff/Trawlua (Co.Sligo), Keadue (Co. Mayo) and in Omey Island and Dogs Bay (Co. Galway).

Affinities

This community is assigned to the *Calluna vulgaris-Scilla verna* heath (H7), even though *Scilla verna* was not recorded in any of the quadrats. In Ireland, *Scilla verna* is restricted to the east coast, but its absence from the community does not alter the essential structure and composition of the community. Community H7 is synonymous with the Calluno-Scilletum vernae Malloch 1971. It may be appropriate to change the name of the *Calluna vulgaris-Scilla verna* heath, to avoid confusion

with vegetation that is similar to H7 but does not have *Scilla verna*, for purely biogeographical reasons.

Table H7

Sample number	93	455	330	301	336	22	4	7	57	1230	56	1231	489	1190	641	454	480	138	124	
	a	d	d	d	d	e	e	e	e	e	e	c	c	c	c	c	c	c	c	
Herb cover (%)	10	70	80	50	60	35	70	70	100	40	60	95	85	90	60	100	40	100	65	
Herb height, centimetres	5	3	0	20	10	25	5	10	20	3	7	2	6	20	7	20	4	12	6	
Moss cover (%)	20	4	50	5	10	50	20	25	25	5	20	15	5	10	0	10	30	20	15	
Bare soil (including sand)	0	10	0	0	0	2	1	0	0	10	2	0	1	0	0	0	5	0	0	
Bare rock (%)	20	0	0	20	0	5	1	0	0	5	10	0	0	5	0	0	0	0	0	
Slope, degrees	0	5	90	25	15	5	5	35	2	5	40	10	0	30	0	0	0	25	3	
Aspect, degrees	0	90	350	250	190	270	330	160	90	230	10	350	0	220	0	0	0	360	60	
pH	–	–	–	–	–	5.8	–	–	6.3	–	6.6	5.6	5.3	6.1	–	–	–	–	5.7	
																				Con
Calluna vulgaris	6	4	4	6	6	7	7	8		8	8	3	5	3	8	1	8	3	8	V
Plantago lanceolata	1	2	3	4		3	2		4	2	3	3		3	1	2	2	4	3	V
Potentilla erecta			4		4	3	3	4	3	3	2	3	4	2	4	3	2		2	IV
Succisa pratensis				5	5	3		4	3	4	3	5	5	7	2	4	1	4	8	IV
Lotus corniculatus	3	4			3	3	4	3	3		3	1		3	2	4	1	2		IV
Plantago maritima	2	3			3		1			3	3	4	5	2		3	3	3	3	IV
Trifolium repens						1	1	4	3			3	2	4	4	3	3	4	4	IV
Galium verum	3					1														I
Aira praecox	5																			I
Festuca rubra	4	5	6		4						2			5						II
Koeleria macrantha	6	4		5		2				3										II
Empetrum nigrum nigrum		3	3	3	2															II
Carex panicea	2				5	1	3			5		7					5	4	5	III
Festuca ovina				4	4	5	5	3	7	4	7	4	4					7		III
Hypochoeris radicata		3	2			1	4	2		1	3	3	2	4			1			III
Anthoxanthum odoratum			7	5		4	5	6	7	2	1			3	3					III
Erica cinerea					3	4	2	4	2	3	4			3						III
Polygala serpyllifolia					2	1	4	2		2	2								2	II
Dactylorhiza maculata					3	2		2	3		1		1							II
Luzula campestris	2					2	3	2	2						3					II
Danthonia decumbens										4		3	2	3	4				2	II
Prunella vulgaris		3									1	4	4	3	2		3			II
Anagallis tenella										3	3	4	4		4	3			1	II
Erica tetralix		4								2	3		4				5			II
Carex flacca		5		2				1	4		3		4	3	4	3		4		III
Carex pulicaris									2			3			2	2	2	3		II
Selaginella selaginoides		2									3					1	1	2		II
Schoenus nigricans																7	2			I
Campylium stellatum																4	4			I
Hypnum cupressiforme			2			2	4			5		3			4	3	4	3	2	III
Viola riviniana		4	3			2	2	2	1	2				3		2	2			III
Holcus lanatus		4	5			2			4				3	3	3	2	2			III
Trifolium pratense						2			3		1			3	3		2	3	2	III
Pseudoscleropodium purum	2				3	4		5	5			1		4	2					III
Agrostis canina					4	2		2		3	3	4					4			II
Bellis perennis	2	2			2					2		1					1	3		II
Euphrasia officinalis agg								1		1		2		4		3		2	1	II
Pilosella officinarum agg		4		3		2			3		2			3			3			II
Salix repens agg	5			6	5	5		4		4		2								II
Thymus praecox arcticus	6				4	2				4	4			3				2		II
Agrostis capillaris							4	3	4				5	6					3	II
Anthyllis vulnerana		3		2							1						3	1		II
Dicranum scoparium						3	1	1							3				2	II
Rhytidiadelphus squarrosus			3			1								4	3				2	II
Cirsium dissectum					5	1					4		5		2					II
Antennaria dioica		5			1	2					4									II
Ctenidium molluscum				3						2	3	4								II
Carex nigra							3								3	4			5	II
Carex pilulifera						1		3			3							2		II
Linum catharticum		3								1		2				2				II
Frullania tamarisci	3											3	2					2		II
Barbula sp	3	3		3							3									II
Taraxacum officinale agg						2								2		3	1			II
Campanula rotundifolia						2		4						2						I
Centaurium erythraea		1										2		2						I
Cerastium fontanum	2	2												3						I

Table H7 (cont'd)

Sample number	93 a	455 d	330 d	301 d	336 d	22 e	4 e	7 e	57 e	1230 e	56 e	1231 c	489 c	1190 c	641 c	454 c	480 c	138 c	124 c	
Cynosurus cristatus														3	2					
Hypericum pulchrum						1			3		2									
Juniperus communis		3		3		5														
Nardus stricta												3			4				2	
Plantago coronopus	3	1																3		
Poa pratensis	3										1								2	
Polygala vulgaris		3		3										2						
Ranunculus bulbosus	1															2		2		
Brachythecium rutabulum									2				3						4	
Mnium hornum													3	2					4	
Achillea millefolium						1								3						
Armeria maritima				3	3															
Carex binervis							3		2											
Carex demissa										5		4								
Centaurea nigra														3				4		
Hydrocotyle vulgaris												5				3				
Leontodon autumnalis							2					3								
Molinia caerulea							3								1					
Primula vulgaris											2			1						
Pteridium aquilinum								1						4						
Ranunculus acris															2			3		
Calliergon cuspidatum			4															3		
Thuidium tamariscinum													2		4					
Peltigera canina	3														2					
Cladonia squamules/sp							1						2							
Frullania sp						3	1													
Agrostis stolonifera																		3		
Blechnum spicant			5																	
Carex echinata															5					
Cerastium diffusum	3																			
Leucanthemum vulgare														3						
Coeloglossum viride		1																		
Dactylis glomerata									2											
Dryopteris dilatata			4																	
Equisetum palustre															2					
Eriophorum angustifolium															4					
Avenula pubescens				5																
Juncus conglomeratus															3					
Pseudorchis albida																			2	
Lolium perenne																		3		
Osmunda regalis			4																	
Parnassia palustris																	2			
Pedicularis sylvatica						1														
Pinguicula vulgaris																2				
Ranunculus repens																3				
Sedum acre		1																		
Senecio aquaticus												3								
Sesleria albicans				6																
Vicia cracca														2						
Bryum pseudotriquetrum			6																	
Homalothecium sericeum	3																			
Dicranella heteromalla											2									
Ditrichum flexicaule			2																	
Eurhynchium praelongum							1													
Fissidens adianthoides																			2	
Plagiomnium rostratum			2																	
Rhytidiadelphus loreus															4					
Rhytidiadelphus triquetrus	2																			
Cladonia ciliata var tenuis		3																		
Number of species	24	29	20	18	20	38	25	23	22	25	32	29	21	36	32	23	26	26	23	26

96503.09

96905.12

H8

Calluna vulgaris-Ulex gallii heath

Synonymy

Calluno-Scilletum vernae Malloch 1971. *Ulex gallii* subassociation

Constant species

Ulex gallii, Erica cinerea, Danthonia decumbens, Potentilla erecta, Anthoxanthum odoratum, Viola riviniana, Euphrasia officinalis agg., *Hypochoeris radicata, Lotus corniculatus, Plantago lanceolata, Plantago maritima, Succisa pratensis, Thymus praecox, Frullani tamarisci.*

Species of note

Sesleria albicans, Carlina vulgaris

Floristic composition and structure

This community is well-defined and easily recognisable in the field. *Ulex gallii, Erica cinerea* and, to a lesser extent, *Calluna vulgaris*, are the defining species of this vegetation type. The associated constants of *Danthonia decumbens, Potentilla erecta, Anthoxanthum odoratum* and *Viola riviniana* suggest that this vegetation type is best accommodated in the *Danthonia decumbens* sub-community (H8b).

The average number of species in the recorded data is 25 species per sample. Shrub cover in both samples is c. 50%, while herb cover is less than 50% in both instances. The presence of exposed rock in both quadrats emphasises the shallow nature of the soils in this community.

Habitat

This community was encountered in an extremely oceanic area of west Connemara, Co.Galway. The community can be quite extensive in areas which do not have a history of heavy grazing pressures over time. The pHs of the sampled soils were 5.8

and 6.6 and the soils themselves appeared to be free-draining and not too peaty in nature. The climate in the area is harsh, with high wind speeds during the winter months. The severity of the climate may halt the progression of this community to woodland.

Distribution within the study area

This community was sampled only in Co.Galway, at Mannin Bay and Dogs Bay. Coastal Connemara provides an excellent locus for this community and there are many fine examples of this community in the area.

Affinities

The quadrats presented in Table H8 are best assigned to the *Calluna vulgaris-Ulex gallii* heath, which is synonymous with the *Ulex gallii* subassociation of the Calluno-Scilletum vernae Malloch 1971.

Table H8

Sample number	1201	1346	
Herb cover (%)	40	40	
Herb height, centimetres	7	20	
Moss cover (%)	30	1	
Bare soil (including sand)	0	0	
Bare rock (%)	15	5	
Slope, degrees	5	45	
Aspect, degrees	10	200	
pH	5.8	6.6	
			Constancy
Ulex gallii	5	6	V
Erica cinerea	5	7	V
Danthonia decumbens	4	2	V
Potentilla erecta	4	3	V
Anthoxanthum odoratum	2	3	V
Viola riviniana	3	2	V
Euphrasia officinalis agg	3	2	V
Hypochoeris radicata	4	2	V
Lotus corniculatus	4	3	V
Plantago lanceolata	3	3	V
Plantago maritima	3	4	V
Succisa pratensis	4	2	V
Thymus praecox	3	4	V
Frullania tamarisci	5	2	V
Calluna vulgaris	7		III
Agrostis canina	3		III
Anagallis tenella	3		III
Carex panicea	5		III
Carex pilulifera	2		III
Hypericum pulchrum	3		III
Jasione montana	3		III
Linum catharticum	3		III
Molinia caerulea	3		III
Pilosella officinarum agg	2		III
Polygala serpyllifolia	2		III
Solidago virgaurea	2		III
Dicranum scoparium	3		III
Hypnum cupressiforme	4		III
Carlina vulgaris		1	III
Centaurea nigra		2	III
Leucanthemum vulgare		2	III
Festuca rubra		4	III
Koeleria macrantha		4	III
Sesleria albicans		5	III
Pseudoscleropodium purum		4	III
Carex binervis		3	III
Number of species	28	22	Mean = 25

H10

Calluna vulgaris-Erica cinerea heath

Synonymy

Callunetum vulgaris McVean & Ratcliffe 1962; Carici binervis-Ericetum cinereae Braun-Blanquet & Tuxen (1950) 1952 *emend.* Birse 1980

Constant species

Calluna vulgaris, Festuca ovina, Potentilla erecta, Erica cinerea, Carex binervis, Carex panicea, Frullania tamarisci

Floristic composition and structure

This community is quite readily identifiable in the field by the co-occurrence of *Calluna vulgaris, Erica cinerea* and *Carex binervis*. The sub-community of H10 which is most appropriate is the *Festuca ovina-Anthoxanthum odoratum* sub-community (H10c), based on the presence of *Festuca ovina* and, to a lesser extent, *Anthoxanthum odoratum, Succisa pratensis, Polygala serpyllifolia* and *Dicranum scoparium*.

The average number of species per sample in the recorded data is quite low, at 12 species per sample. Shrub cover in both quadrats is in excess of 80%, while herb cover is less than 50% in both cases.

Habitat

In the literature, this community is noted as occuring on acid to circumneutral soils, which are quite free-draining (Rodwell, 1991). The pH of the sampled soils are quite acid, at 4.9 and 5.3. This community is very susceptible to damage by high grazing pressures over time.

Distribution within the study area

During this survey, this community was only encountered in Co. Donegal, although it does occur all along the western seaboard. This vegetation type is not known as a maritime community (unlike H7 and, to a lesser extent, H8) and this probably explains why it is so poorly represented in the study area.

Affinities

This community is best assigned to the *Calluna vulgaris-Erica cinerea* heath (H10), a synonym of the Callunetum vulgaris McVean & Ratcliffe 1962 and the Carici binervis-Ericetum cinereae Braun-Blanquet & Tuxen (1950) 1952 *emend.* Birse 1980.

Table H10

Sample number	324	60	
Herb cover (%)	20	50	
Herb height, centimetres	15	7	
Moss cover (%)	10	10	
Bare soil (including sand)	0	2	
Slope, degrees	0	15	
Aspect, degrees	0	310	
pH	4.9	5.3	
			Constancy
Calluna vulgaris	10	10	V
Festuca ovina	4	3	V
Carex binervis	3	3	V
Carex panicea	4	6	V
Erica cinerea	5	3	V
Potentilla erecta	4	4	V
Frullania tamarisci	4	4	V
Eriophorum angustifolium	3		III
Ctenidium molluscum	3		III
Antennaria dioica		2	III
Anthoxanthum odoratum		1	III
Dactylorhiza maculata ericetor		3	III
Pedicularis sylvatica		1	III
Polygala serpyllifolia		3	III
Succisa pratensis		3	III
Dicranum scoparium		1	III
Hypnum cupressiforme		4	III
Number of species	9	15	Mean = 12

SWAMP COMMUNITIES

S2

Cladium mariscus swamp and sedge-beds

Synonymy

Cladietum marisci Zobrist 1933 emend. Pfeiffer 1961

Constant species

Cladium mariscus, Phragmites australis, Menyanthes trifoliata

Community description

This swamp community is dominated by the tall basiphilous Cyperaceous species *Cladium mariscus*. The tendency of the species to grow as monodominant clumps leads to an impoverished associated flora (mean = 5 species per quadrat) in which *Menyanthes trifoliata* and *Phragmites australis* are constant, however the cover of both these species is always below 15%. Cover of other vascular species is similarly low with *Juncus acutiflorus, Agrostis stolonifera* and *Juncus subnodulosus* being the only other vascular species present. In common with most other swamp communities encountered, the bryophyte layer is very sparse probably due to a combination of the consistently high water table and the shading effects of *Cladium*.

Habitat

In this study the *Cladium mariscus* community was recorded from two habitat types, an area of base-rich fen surrounded by extensive sand-plain and the scraw margins of a small lake surrounded by bog. Although both habitats are characterised by the presence of a high water table which gives rise to a substrate of unconsolidated peat, they differ in terms of base status of surface waters. In the fen habitat the community occurs in the middle of a large area of flat fen dominated by *Juncus subnodulosus* while in the lake scraw habitat the community

is surrounded by, and grades into, swamp vegetation dominated by *Phragmites australis*.

Distribution within the study area

This community was one of the least frequently encountered swamp communities in the study being noted from only two sites in the study area, Dooaghtry, Co. Mayo and Mannin, Co. Galway.

Affinities

This community agrees well with the *Menyanthes trifoliata* sub-community of the *Cladium mariscus* community (S2b) described by the NVC. Its composition also agrees well with other species-poor *Cladium mariscus* communities described recently in Ireland by other authors, e.g. O'Connell *et al.* (1984), Mooney and O'Connell (1990) and Wolfe-Murphy *et al.* (1992).

Table S2

Sample number	1196 b	1291 b	
Slope, degrees	0	0	
Herb height, centimetres	140	210	
Herb cover (%)	75	100	
Moss cover (%)	0	5	
Bare rock (talus,outcrops,shin	0	0	
Bare soil (including sand)	20	0	
Open water (%)	30	0	
			Constancy
Cladium mariscus	8	10	V
Phragmites australis	4	5	V
Menyanthes trifoliata	3	4	V
Juncus acutiflorus	5		III
Agrostis stolonifera	2		III
Eurhynchium praelongum		3	III
Juncus subnodulosus		3	III
Number of species per sample	5	5	Mean = 5

b = Menyanthes trifoliata sub-community

S4

Phragmites australis swamp

Synonymy

Phragmitetum australis (Gams 1927) Schmale 1939

Constant species

Phragmites australis

Floristic composition and structure

This community is characterised by a general dominance of *Phragmites australis*, however the cover of the species can vary from c. 15% in open stands to almost 100% in closed stands. The overwhelming dominance of tall (generally greater than 2 metres), dense, *Phragmites* gives rise to a species-poor (mean = 6 species per quadrat) vegetation type. The only other species to attain any degree of frequency in the vegetation is *Menyanthes trifoliata* with *Agrostis stolonifera*, *Hydrocotyle vulgaris*, *Juncus bulbosus* and *Mentha aquatica* also occurring in smaller amounts. The recorded vegetation can be divided into four sub-communities. Three of these are similar to sub-communities outlined by the NVC, i.e. the species-poor *Phragmites australis* sub-community (S4a), the more species-rich *Menyanthes trifoliata* sub-community (S4b) and the *Atriplex prostrata* sub-community (S4d) which has a number of halophytic species associated. A species-rich *Agrostis stolonifera* sub-community is recognised from the samples collected in this study and it is differentiated from the other sub-communities by the increased presence of *Agrostis stolonifera*, *Hydrocotyle vulgaris*, *Equisetum fluviatile*, *Caltha palustris*, *Potentilla anserina* and *Epilobium hirsutum*.

Habitat

The *Phragmites australis* community is generally found in the shallow margins of freshwater lakes where it can occur either rooted in a firm peaty substrate or as a floating raft embedded in a loose peaty matrix. The community was also recorded from an area of base-rich fen and from the edge of salt marsh dominated by *Juncus maritimus* (the *Atriplex prostrata* sub-community). At most sites in which the community is present there is generally an abrupt transition to the adjacent wetland community on the land-ward side while the open water transition, if present, is to an aquatic community such as the *Nymphaea alba* community (A7) or the *Potamogeton natans* community (A9). It is also found in locations where there is little or no open water remaining. In such cases the community can cover extensive areas.

Distribution within the survey area

This was one of the most widespread swamp communities encountered during the survey being recorded. However, the community is most frequent in the larger coastal sites where large freshwater lakes are more commonly found within the confines of the sites.

Affinities

There is generally a good correlation between the data collected in this study and the sub-communities of the *Phragmites australis* swamp outlined by the NVC, however more research is needed in order to fully document the distribution and composition of the species-rich *Agrostis stolonifera* sub-community in Ireland. Species-poor *Phragmites australis* communities, from many parts of Ireland, have been well described by a number of authors, most notably O'Connell *et al.* (1984), Mooney and O'Connell (1990)and Wolfe-Murphy *et al.* (1992), however stands of *Phragmites* with an understorey of halophytic species have been poorly documented.

Table S4

Sample number	1344	971	1107	1195	533	1367	184	1295	1189	1211	49	531	1268	429	411	211	765	
Sub-community	a	a	a	a	a	a	a	c	c	c	c	c	c	d	e	e	e	
Slope, degrees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Herb height, centimetres	120	230	250	100	110	260	190	220	250	160	250	120	30	230	300	200	180	
Herb cover (%)	90	95	95	85	30	98	97	100	100	85	80	65	80	98	100	95	99	
Moss cover (%)	0	0	0	0	1	20	10	0	50	0	0	0	5	0	0	0	5	
Bare soil (including sand)	0	0	0	80	85	0	0	0	0	40	0	0	10	5	40	10	0	
Open water (%)	100	0	10	0	0	0	0	0	0	0	30	60	40	0	0	0	0	
Phragmites australis	9	10	10	3	5	10	7	10	10	9	7	7	3	8	10	8	9	Constancy V
Menyanthes trifoliata								4	3	3	7		5					II
Equisetum fluviatile												3	3					I
Carex rostrata				1								6						I
Festuca rubra							5							5				I
Cochleana officinalis														5				I
Agrostis stolonifera								3							3	5	6	II
Hydrocotyle vulgaris			2								1				2		3	II
Equisetum palustre									1						3	2		I
Caltha palustris																3	1	I
Potentilla anserina																3	2	I
Epilobium hirsutum															1		2	I
Mentha aquatica									1				3		3			I
Cardamine pratensis							3									2		I
Holcus lanatus							3										5	I
Juncus acutiflorus				9									8					I
Juncus bulbosus					2					3								I
Ranunculus acris							2										3	I
Scirpus lacustris tabernaemont				2								3	3					I
Callergon cuspidatum						4											4	I
Angelica sylvestris																3		I
Apium nodiflorum													5					I
Callitriche stagnalis															2			I
Cardamine hirsuta															3			I
Carex demissa					2													I
Carex nigra											2							I
Dactylorhiza fuchsii																	1	I
Eleocharis multicaulis					3													I
Epilobium palustre																2		I
Epilobium parviflorum													3					I
Enophorum angustifolium											1							I
Iris pseudacorus																	3	I
Juncus articulatus					1													I
Juncus effusus											3							I
Lotus uliginosus							3											I
Myosotis laxa caespitosa		2																I
Plantago lanceolata																	1	I
Poa pratensis							6											I
Potamogeton polygonifolius										2		3						I
Rumex acetosa																3		I
Rumex crispus																1		I
Rumex obtusifolius																3		I
Samolus valerandi					1													I
Scirpus maritimus						2												I
Drepanocladus aduncus													3					I
Eurhynchium praelongum							5											I
Fontinalis antipyretica									7									I
Scorpidium scorpioides					1													I
Callitriche seedling/sp						3												I
Nitella										7								I
Juncus subnodulosus								2										I
Number of species	1	2	2	4	7	4	8	4	5	5	6	5	9	3	8	11	12	Mean = 6

a = Phragmites australis sub-community
c = Menyanthes trifoliata sub-community
d = Atriplex prostrata sub-community
e = Agrostis stolonifera-Hydrocotyle vulgans sub-community

96502.14

96500.02

S8

Scirpus lacustris ssp. *lacustris* swamp

Synonymy

Scirpetum lacustris (Allorge 1922) Chouard 1924

Constant species

Scirpus lacustris, Phragmites australis

Floristic composition and structure

This swamp community is characterised by the distinctive, tall shoots of *Scirpus lacustris* ssp. *lacustris*. The vegetation is typically species-poor with an average of 3 species per sample. Of the associated plant species, *Phragmites australis* is the most frequent however there can also be some *Potamogeton natans*, *Nymphaea alba*, *Eleocharis palustris* and *Sparganium erectum* present.

Habitat

This community is generally found in shallow water along the edges of large freshwater lakes (as opposed to the *Scirpus lacustris* ssp *tabernaemontani* which occurs in brackish waters), where the substrate is frequently a mixture of silt and peat. Due to its habitat preferences, the *Scirpus lacustris* community is frequently found in close association with either the *Potamogeton natans* community or the *Nymphaea alba* community. Occasionally the community can form extensive monodominant swamps in smaller waterbodies in which the water level has undergone a recent reduction.

Distribution within the survey area

The distribution of this community is mainly dependent on the presence of reasonably large freshwater open waterbodies. In coastal areas where there is a brackish influence spp. *lacustris* tends to be replaced by *Scirpus lacustris* ssp.

tabernamontani. In this survey the community was only found in one site in County Donegal (Sheskinmore) and two sites in Co. Galway (Omey and Mannin). Elsewhere in Ireland communities dominated by *Scirpus lacustris lacustris* are relatively common and widely distributed cf. O'Connell et al. (1984). Wolfe-Murphy *et al.* (1992).

Affinities

The recorded vegetation is clearly referable to S8 and the species-poor nature of the samples present suggests that the samples are best accommodated in S8a. The occasional presence of *Potamogeton natans* and *Nymphaea alba* suggests that some of the samples have an affinity with sub-community c. the *Equisetum fluviatile* sub-community. The abundance of *Phragmites australis* in one of the samples illustrates the fact that there is often considerable overlap between species-poor swamp vegetation types such as the *Scirpus lacustris* community and the *Phragmites australis* community. Mooney and O'Connell (1990) have described a broadly similar species-poor, Scirpetum lacustris vegetation type from the shores of Lough Corrib, Co. Galway. *Scirpus lacustris* communities have been recorded from lakes in Northern Ireland by Wolfe-Murphy *et al.* (1992) and the stands recorded in this survey are most similar to the *Equisetum fluviatile/Phragmites* sub-community.

Table S8

Sample number	482 a	1191 a	1343 a	
Slope, degrees	0	0	0	
Herb height, centimetres	210	200	150	
Herb cover (%)	95	80	90	
Bare rock (talus,outcrops,shin	0	0	0	
Bare soil (including sand)	0	0	0	
Open water (%)	50	30	100	
				Constancy
Scirpus lacustris lacustris	10	9	9	V
Phragmites australis		8	2	IV
Eleocharis palustris	3			II
Polygonum amphibium	3			II
Nymphaea alba		6		II
Potamogeton natans		5		II
Sparganium erectum		4		II
Number of species	3	5	2	Mean = 3

a = Scirpus lacustris lacustris sub-community

96916.27

S9

Carex rostrata swamp

Synonymy

Carex rostrata-Menyanthes trifoliata Association Birks 1973

Constant species

Carex rostrata, Equisetum fluviatile

Species of note

Carex diandra

Floristic composition and structure

The *Carex rostrata* community is a species-poor swamp community dominated by the medium-sised shoots of *Carex rostrata*. The mean number of species per quadrat is 7, with a range from 3 to 13. Apart from *C. rostrata* the only other constant species in this vegetation is *Equisetum fluviatile*, however *Menyanthes trifoliata, Agrostis stolonifera, Eleocharis palustris, Mentha aquatica, Phragmites australis* and *Sparganium erectum* are locally frequent in the vegetation. A bryophyte layer is generally absent in this vegetation type.

Habitat

This community is most frequently encountered along the edges of large, nutrient-poor freshwater lakes. The vegetation is frequently found along the edges of scraw systems where such areas meet open water. Due to the wetness of the habitat, soil development is restricted to a loose peaty mud and frequently the vegetation occurs as an extensive quaking mat.

Distribution within the survey area

The *Carex rostrata* community was encountered infrequently during the study only being recorded in four of the larger sites. Two of these are in Co. Donegal (Clooney and Sheskinmore), one in Co. Sligo (Bunduff) and one in Co. Mayo (Dooaghtry). This distribution pattern suggests that the community is more common in the north of the study area. In terms of general distribution throughout Ireland, vegetation dominated by *Carex rostrata* is one of the more frequently encountered freshwater swamp communities in Ireland (O'Connell *et al.* 1984).

Affinities

On balance, most of the samples of *Carex rostrata*-dominated vegetation recorded in this study are best placed in the *Menyanthes trifoliata-Equisetum fluviatile* sub-community of the *Carex rostrata* swamp (S9b). However there appears to be a considerable overlap between the S9b and the *Carex rostrata-Equisetum fluviatile* sub-community of the *Carex rostrata-Potentilla palustris* tall-herb fen (S27a) and some of the samples recorded in this study could equally be accommodated in the latter community. Broadly similar *Carex rostrata* communities have been previously described in Ireland in other studies, e.g. the *Carex rostrata* community (Mooney and O'Connell, 1990), the *Carex rostrata* community and the *Potentilla palustris-Carex rostrata* community (Wolfe-Murphy *et al.*, 1992)

Table S9

Sample number	660	653	1094	632	530	554	515	415	1106	552	1105	
Sub-community	a	b	b	b	b	b	b	b	b	b	b	
Slope, degrees	0	0	0	0	0	0	0	0	0	0	0	
Herb height, centimetres	50	40	20	30	100	100	130	12	90	70	25	
Herb cover (%)	25	80	60	80	95	60	95	80	85	75	85	
Moss cover (%)	0	0	0	0	0	0	0	10	0	0	0	
Bare soil (including sand)	0	10	0	0	0	0	0	30	0	25	20	
Open water (%)	100	40	100	20	75	100	5	5	100	0	0	
												Constancy
Carex rostrata	5	7		7	10	5	6	8	7	5	5	V
Equisetum fluviatile		5	4	5	4		4		5	5		IV
Menyanthes trifoliata	2	7	8						4		5	III
Mentha aquatica				7		1				5		II
Sparganium erectum		3					7		4			II
Phragmites australis					2	3		4				II
Agrostis stolonifera							6		4	3		II
Eleocharis palustris							1	2	3			II
Callitriche stagnalis					3					3		I
Potamogeton natans			2	4								I
Potamogeton polygonifolius								3			5	I
Typha latifolia			2						5			I
Carex nigra								3			6	I
Hydrocotyle vulgaris										3	2	I
Hypericum elodes										7	4	I
Ranunculus flammula										3	3	I
Nymphaea alba						2				3		I
Alisma plantago-aquatica						6						I
Baldellia ranunculoides											2	I
Caltha palustris					2							I
Cardamine pratensis					2							I
Chara hispidus				6								I
Scirpus lacustris tabernaemont						3						I
Carex diandra											4	I
Epilobium palustre											1	I
Eriophorum angustifolium								3				I
Galium palustre											2	I
Hippuris vulgaris									4			I
Juncus acutiflorus											5	I
Juncus articulatus								3				I
Juncus bulbosus										5		I
Myosotis laxa caespitosa										2		I
Potamogeton obtusifolius									3			I
Potentilla palustris								2				I
Samolus valerandi											1	I
Scirpus fluitans										6		I
Senecio aquaticus										3		I
Stellaria alsine							3					I
Chara sp								3				I
Ranunculus seedling/sp									2			I
Epilobium sp							2					I
Number of species	2	4	4	5	6	6	7	9	10	13	13	Mean = 7

a = Carex rostrata sub-community

b = Menyanthes trifoliata-Equisetum fluviatile sub-community

S12

Typha latifolia swamp

Constant species

Typha latifolia

Synonymy

Typhetum latifoliae Soo 1927

Floristic composition and structure

This extremely species-poor swamp community is dominated by stout shoots of *Typha latifolia* which can attain a height of 100 cm. The community occurs as monodominant stands and the only other plant species that occurs is *Hippurus vulgaris*. The presence of *Hippurus* demonstrates the aquatic nature of the habitat.

Habitat

This community is found in frequently inundated areas along the edges of open water bodies. In such habitats soil formation is poor being limited to a very wet soupy peat.

Distribution within the survey area

Although *Typha latifolia* was recorded from many sites during the survey, the species-poor *Typha latifolia* swamp was rarely encountered was only recorded from one site in Co. Sligo (Bunduff) and one in Co. Mayo (Dooaghtry).

Affinities

The *Typha*-dominated vegetation recorded during this study corresponds well to the *Typha latifolia* sub-community of the *Typha latifolia* swamp, which is the most species-poor sub-community of S12. Very similar species-poor *Typha*

latifolia communities have been recorded by Wolfe-Murphy *et al.* (1992) from lakes in Northern Ireland.

Table S12

Sample number	634	1091	
Sub-community	a	a	
Slope, degrees	0	0	
Herb height, centimetres	180	250	
Herb cover (%)	60	60	
Bare rock (talus,outcrops,shin	0	0	
Bare soil (including sand)	0	0	
Open water (%)	40	100	
			Constancy
Typha latifolia	9	8	V
Hippuris vulgaris	3		III
Number of species	2	1	

a = Typha latifolia sub-community

S14

Sparganium erectum swamp

Synonymy

Sparganietum erecti Roll 1938

Constant species

Sparganium erectum, Agrostis stolonifera, Mentha aquatica

Species of note

Bidens cernua

Floristic composition and structure

The *Sparganium erectum* swamp is generally dominated by tall shoots of the character species and is accompanied by *Agrostis stolonifera, Mentha aquatica* with smaller amounts of *Equisetum fluviatile, Eleocharis palustris* and *Berula erecta*. Other vascular plants occur only sporadically in the community, however *Menyanthes trifoliata, Bidens cernua, Caltha palustris* and *Carex nigra* are prominent in some of the samples. A bryophyte layer is generally absent in this community, however in one sample there is a high cover of *Calliergon giganteum*.

Habitat

This community is largely restricted to muddy-bottomed ditches or small streams running through coastal sand plains. At one site (Dooaghtry) it is also found occurring along the scraw margins of a lake where there is some flow of water evident.

Distribution within the survey area

The community was only recorded from four sites during the study. Two of these sites are in Co. Donegal (Lunniagh and Clooney) and two are in Co. Mayo (Dooaghtry and Belmullet).

Affinities

Although similar in terms of general floristics, the *Sparganium erectum* community recorded in this study differs somewhat from the *Sparganium* communities outlined by the NVC. *Agrostis stolonifera, Equisetum fluviatile* and *Berula erecta* are more common in the Irish data, however it seems likely that the full range of *Sparganium* communities has not been sampled in Britain (only 51 samples have been collected and there appears to be no samples from the west of Scotland). Mooney and O'Connell (1990) have recorded a similar vegetation type from drains and lake margins in Lower Lough Corrib.

Table S14

Sample number	407	857	208	1092	1108	
Sub-community	a	a				
Slope, degrees	0	0	0	0	0	
Herb height, centimetres	100	80	45	220	20	
Herb cover (%)	40	5	60	90	85	
Moss cover (%)	0	0	0	0	85	
Bare soil (including sand)	0	0	0	0	0	
Open water (%)	100	100	80	100	5	
						Constancy
Sparganium erectum	5	5	7	6	3	V
Agrostis stolonifera	3	2	2	3	3	V
Mentha aquatica	2		3	2	3	IV
Equisetum fluviatile			2	3	2	III
Eleocharis palustris			2	3		II
Berula erecta				3	3	II
Ranunculus seedling/sp	5					I
Equisetum palustre	4					I
Nasturtium officinale		2				I
Iris pseudacorus		2				I
Apium nodiflorum			3			I
Caltha palustris			3			I
Potamogeton natans			2			I
Menyanthes trifoliata				8		I
Typha latifolia				6		I
Calliergon giganteum					9	I
Bidens cernua					7	I
Carex nigra					5	I
Hydrocotyle vulgaris					4	I
Galium palustre					3	I
Myosotis laxa caespitosa					3	I
Hippuris vulgaris					2	I
Veronica beccabunga					2	I
Number of species	5	4	8	8	13	Mean = 8

a = Sparganium erectum sub-community

96500.33

S19

Eleocharis palustris swamp

Synonymy

Eleocharis palustris consocies Pearsall 1918

Constant species

Eleocharis palustris

Species of note

Bidens cernua, Potamogeton filiformis

Floristic composition and structure

The *Eleocharis palustris* community is a species-poor swamp aquatic vegetation type dominated by the slender shoots of *Eleocharis*. Shoots of the species can reach a height of 40 cm, however the usual height is between 20 and 30 cm. Although no other species is constant in the community, *Agrostis stolonifera* and *Juncus articulatus* are present in between 40 and 60% of the samples and *Hydrocotyle vulgaris, Apium nodiflorum, Carex nigra, Hippurus vulgaris, Mentha aquatica* and *Caltha palustris* are present in between 20 and 40% of samples. Bryophytes are generally absent in this community, but *Calliergon cuspidatum* and *Drepanocladus aduncus* occasionally occur. Three sub-communities of this vegetation type are recognised, these are a species-poor *Eleocharis* sub-community (a), a more species-rich *Agrostis stolonifera* sub-community (b) (both of which are also recognised in the NVC system) and a *Hydrocotyle vulgaris* sub-community (d). The *Agrostis stolonifera* sub-community also contains a number of halophytic species, e.g. *Potentilla anserina, Triglochin maritimum, Scirpus maritimus, Trifolium repens* and *Juncus gerardii*, while the *Hydrocotyle vulgaris* sub-community contains more *Carex nigra* than the other sub-communities.

Habitat

The *Eleocharis palustris* swamp is found in two distinct types of habitat. The main habitat occupied by the community is shallow ditches which run through areas of *Carex nigra-Hydrocotyle vulgaris* marsh or *Festuca-Galium* grassland. In this habitat there can be some overlap between the *Eleocharis palustris* swamp and the *Apium nodiflorum-Nasturtium officinale* swamp (S23) and indeed *Eleocharis* is a frequent component of S23. However, the *Eleocharis palustris* swamp is generally restricted to wetter channels in which water flow is evident. The community is also found on sandy substrates along the shallow margins of large coastal lakes where there is a sharp transition from *Festuca-Galium* grassland to open water (see following plates). In both habitats the substrate consists of either coarse sand or coarse sand which is overlain by a thin layer of wet peat.

Distribution within the survey area

This community is one of the most frequent swamp communities present in coastal sites and is widely distributed throughout the study area. The sub-communities recognised appear to be evenly distributed throughout the study area.

Affinities

This swamp community is comparable to the *Eleocharis palustris* swamp outlined by the NVC, however a sub-community characterised by the increased presence of *Hydrocotyle vulgaris* and *Carex nigra* has been recognised in this study. Broadly similar *Eleocharis palustris* communities have been previously recorded from Lower Lough Corrib, Co. Galway by Mooney and O'Connell (1990) and Northern Ireland by Wolfe-Murphy *et al.* (1992).

Table S19

Sub-community	A	C	D
Slope, degrees	0	1 (0-10)	0
Herb height, centimetres	23 (5-50)	26 (10-40)	25 (15-30)
Herb cover (%)	60 (9-90)	71 (20-100)	59 (40-70)
Moss cover (%)	4 (0-40)	9 (0-40)	22 (0-70)
pH (2 numerals no point)	N.D.	8.4	6.2
Bare soil (including sand)	10 (0-50)	14 (0-60)	23 (0-60)
Open water (%)	65 (0-100)	37 (0-100)	21 (0-75)
Eleocharis palustris	V	V	V
Agrostis stolonifera		V	III
Potentilla anserina	I	II	
Triglochin maritimum		II	
Scirpus maritimus		I	
Trifolium repens		I	
Juncus gerardi		I	
Hydrocotyle vulgaris		II	V
Carex nigra	I	II	III
Juncus articulatus	III	IV	I
Apium nodiflorum	II	II	II
Mentha aquatica	I	II	II
Carex palustris	I	I	II
Menyanthes trifoliata	II	I	I
Potamogeton natans	I	I	I
Ranunculus seedling/sp	I	I	I
Hippuris vulgaris	II	II	
Polygonum amphibium		II	I
Equisetum fluviatile	I	II	
Nasturtium officinale	II		I
Baldellia ranunculoides	I		I
Berula erecta	I	I	
Elodea canadensis	I		I
Myosotis laxa caespitosa	I	I	
Ranunculus flammula	I	I	
Sparganium erectum	I	I	
Triglochin palustre	I	I	
Veronica anagallis-aquatica	I	I	
Callergon cuspidatum	I	I	I
Drepanocladus aduncus	I	I	I
Chara vulgaris	I	I	
Myosotis seedling/sp		I	I
Apium inundatum		I	I
Epilobium parviflorum		I	I
Galium palustre		I	I
Iris pseudacorus	I		I
Juncus bufonius	I	I	
Lemna minor	I	I	
Ranunculus baudotii	I		I
Samolus valerandi	I	I	
Scorpidium scorpioides	I		I
Chara hispidus		I	I
Plantago major	I		
Isoetes lacustris	I		
Polygonum hydropiper	I		
Glaux maritima	I		
Polygonum persicaria	I		
Potamogeton filiformis	I		
Potamogeton gramineus	I		
Catabrosa aquatica	I		
Utricularia vulgaris	I		
Bryum pseudotriquetrum		I	
Senecio jacobaea		I	
Phragmites australis		I	
Epilobium palustre		I	
Sagina procumbens		I	
Cerastium semidecandrum		I	
Alisma plantago-aquatica		I	
Hypochoeris radicata		I	
Bidens cernua		I	
Juncus acutiflorus		I	
Campylium stellatum		I	
Ochranella heteromalla		I	
Eurhynchium praelongum		I	
Fontinalis antipyretica			II
Cardamine pratensis			I
Equisetum palustre			I
Glycena fluitans			I
Juncus bulbosus			I
Potentilla palustris			I
Scirpus fluitans			I
Callergon gigantieum			I
Mean number of species	6 (4-11)	9 (5-13)	8 (4-13)
Number of samples	13	13	7

a = Eleocharis palustris sub-community
c = Agrostis stolonifera sub-community
d = Hydrocotyle vulgaris sub-community

96500.04

96921.08

S20

Scirpus lacustris ssp. *tabernaemontani* swamp

Synonymy

Schoenoplectus tabernaemontani nodum Adam 1976

Constant species

Scirpus lacustris ssp. *tabernaemontani*

Floristic composition and structure

The *Scirpus lacustris* ssp *tabernaemontani* swamp is similar in appearance *to Scirpus lacustris* ssp. *lacustris* swamp, however the shoots of the dominant species are much shorter, generally attaining heights of less than 120 cm. At some sites aerial shoots of the species are heavily grazed by cattle. The vegetation is generally species-poor and single-species stands were recorded. When an associated flora occurs there is a range of marsh species present including *Eleocharis palustris, Phragmites australis, Samolus valerandii, Agrostis stolonifera, Carex demissa, Galium palustre* and *Mentha aquatica.*

Habitat

Scirpus lacustris ssp *tabernaemontani* is most frequently found in brackish habitats, however in Britain the species can also occur in standing fresh water (Rodwell, 1995). *Scirpus lacustris* ssp *tabernaemontani* is more commonly encountered in brackish waters. In this study the community was found growing in wet peats and muds along the margins lakes and marshes in close proximity to the sea, from which there is presumably some saline influence.

Distribution within the survey area

This community is widely distributed throughout the study area being recorded from a total of 7 sites, two of which are in Co. Donegal (Lunniagh and

Sheskinmore), one in Co. Sligo (Bunduff), two in Co. Mayo (Dooaghtry and Belmullet) and Two in Co. Galway (Dogs bay and Slyne head).

Affinities

Some of the samples recorded in this study correspond well with the species-poor sub-community of S20 (S20a) described by the NVC, however many samples contain species typical of freshwater conditions which are largely absent from the existing NVC data. Wolfe-Murphy *et al.* (1992) recorded a *Schoenoplectus tabernaemontani* community from coastal lakes in Co. Down which also contain species more typical of freshwater conditions such as *Mentha aquatica*, *Phragmites australis* and *Eleocharis palustris*.

Table S20

Sample number	261	1140	636	900	1200	1287	534	1312	845	
Sub-community	a	a	a							
Slope, degrees	0	0	0	0	0	0	0	0	0	
Herb height, centimetres	70	150	100	20	30	40	110	65	120	
Herb cover (%)	100	70	95	100	45	65	55	70	85	
Moss cover (%)	0	0	0	10	0	0	30	0	5	
pH (2 numerals no point)	-	-	-	-	6.2	-	-	-	-	
Bare rock (talus,outcrops,shin	0	0	0	0	5	0	0	9	0	
Bare soil (including sand)	0	0	0	10	80	0	60	40	5	
Open water (%)	100	60	10	0	0	100	0	0	10	
Scirpus lacustris tabernaemontani	10	8	10	10	7	7	7	7	8	Constancy V
Eleocharis palustris						3	3		3	II
Phragmites australis					4	3		2		II
Samolus valerandi					2		1	1		II
Agrostis stolonifera				4					3	II
Carex demissa							2	2		II
Galium palustre							2		3	II
Mentha aquatica				2			2			II
Brachythecium rutabulum				3					4	II
Carex rostrata			3							I
Anagallis tenella					1					I
Berula erecta						2				I
Hippuris vulgaris						3				I
Cardamine pratensis									3	I
Carex panicea								3		I
Epilobium parviflorum									2	I
Hydrocotyle vulgaris									6	I
Iris pseudacorus						2				I
Lemna minor									4	I
Myosotis laxa caespitosa									2	I
Potamogeton polygonifolius								2		I
Ranunculus bulbosus							3			I
Triglochin palustre								3		I
Typha latifolia										I
Cratoneuron filicinum									2	I
Scorpidium scorpioides							6			I
Pellia epiphylla									2	I
Chara sp								7		I
Ranunculus seedling/sp									3	I
Number of species	1	1	2	4	4	6	8	8	13	Mean = 5

a = Scirpus lacustris tab sub-community

S21

Scirpus maritimus swamp

Synonymy

Scirpetum maritimi (Braun-Blanquet 1931) R. Tx. 1937

Constant species

Scirpus maritimus

Species of note

Rumex hydrolapathum

Floristic composition and structure

This maritime swamp community is generally dominated by the light-green shoots of *Scirpus maritimus* which can reach a height in excess of 1 metre and covers more than 50% of the quadrat. Associated vascular species are sparse *with Agrostis stolonifera, Eleocharis palustris, Samolus valerandi* and *Triglochin maritimum* being the only one to occur in more than 20% of the quadrats. Most of the samples collected are species-poor, containing either 2 or 3 species per quadrat, however one of the samples contains 14 species.

Habitat

The *Scirpus maritimus* swamp is generally restricted to saline peats and muds at the back of areas of *Armeria-Plantago* salt-marsh. It also is also found occasionally in the brackish zones where freshwater streams spill onto sandy beaches. In situations such as these there is frequently a transition to *Eleocharis palustris* swamp.

Distribution within the survey area

This community has a wide, but local distribution throughout the study area being recorded from 2 sites in Co. Donegal (Lunniagh and Clooney), 1 site in Co. Sligo (Bunduff) and 3 sites in Co. Mayo (Dooaghtry, Iniskea and Belmullet).

Affinities

Most of the samples of the *Scirpus maritimus* swamp collected during this study have a close affinity with the species poor sub-community (sub-community a) of S21 described by the NVC. White and Doyle (1982) state that the Scirpetum maritimi is common around the Irish coast.

Table S21

Sample number	1075	748	972	1066	193	657	401	752	
Sub-community	a	a	a	a	a				
Slope, degrees	0	0	0	0	0	0	0	0	
Herb height, centimetres	40	80	140	40	60	80	150	60	
Herb cover (%)	35	60	100	70	65	100	90	95	
Moss cover (%)	0	0	0	0	0	20	5	5	
Bare soil (including sand)	0	0	0	20	5	0	0	5	
Open water (%)	100	60	0	60	40	0	0	0	
Scirpus maritimus	3	8	10	8	8	9	8	8	Constancy V
Agrostis stolonifera						5	2	4	II
Eleocharis palustris	6	3					3		II
Samolus valerandi							1	2	II
Triglochin maritimum				3				1	II
Brachythecium rutabulum						5	4		II
Cardamine flexuosa							3		I
Cardamine hirsuta			3						I
Cardamine pratensis								3	I
Carex arenaria								1	I
Epilobium hirsutum						1			I
Epilobium palustre								1	I
Epilobium parviflorum								1	I
Festuca rubra								5	I
Glaux maritima					1				I
Juncus articulatus								3	I
Juncus gerardi					3				I
Mentha aquatica							2		I
Myosotis laxa caespitosa			2						I
Plantago lanceolata								1	I
Plantago maritima								2	I
Potentilla anserina						4			I
Ranunculus acris								3	I
Rumex hydrolapathum						3			I
Scirpus lacustris tabernaemont				3					I
Bryum pseudotriquetrum								3	I
Number of species	2	2	3	3	3	6	7	14	Mean = 5

a = Scirpus maritimus sub-community

S23

Nasturtium officinale-Apium nodiflorum ditch vegetation

Synonymy

Nasturtietum officinalis (Siebert1962) Oberd. *et al*. 1967

Constant species

Nasturtium officinale, Agrostis stolonifera, Apium nodiflorum

Species of note

Mimulus guttatus, Oenanthe lachenalii

Floristic composition and structure

This distinctive ditch vegetation is characterised by the constant presence of *Nasturtium officinale, Agrostis stolonifera* and *Apium nodiflorum*. Herb cover is usually greater than 60%, however it can often be much less. The community can be further divided into three sub-communities. Sub-community a is the species-poor typical community which has a mean of 7 species per quadrat. Sub-community b is characterised by the increased presence of the wetland herbs *Glyceria fluitans, Alopecurus genticulatus, Poa trivialis* and *Veronica beccabunga* and is more species-rich than sub-community a, with an average of 10 species per quadrat. Sub-community c is the most species-rich of the sub-communities recorded with an average of 16 species per quadrat. It is characterised by the increased frequency of a number of wetland species including *Eleocharis palustris, Juncus articulatus,, Calliergon cuspidatum, Epilobium palustre, Hydrocotyle vulgaris, Myosotis laxa* and *Sagina procumbens*. The moss cover is also much higher in this sub-community than in the others.

Habitat

This vegetation type is typically to be found in wet ditches (both natural and manmade) which run through areas of *Festuca-Galium* grassland. The substrate the vegetation is rooted in generally consists a thin layer of soil composed of a mixture of dark waterlogged peat and sand, overlying a substratum of pure sand. Despite the striking differences in vegetation observed there is little difference in the mean soil pHs of the three sub-communities a, b and c recognised, which average 7.8, 7.5 and 7.9 respectively. The community frequently occurs in the same ditches as, and intergrades with, the *Eleocharis palustris* swamp (S19) and it can sometime be difficult to separate these two communities. The observed differences in vegetation are attributable to subtle habitat differences. Thus the species-poor typical sub-community, is generally found in the more eutrophic ditches where the dominance of *Nasturtium* and *Apium* leads to a species-poor associated flora. The *Glyceria fluitans* sub-community occurs in ditches which are visibly much wetter than ditches that the other two sub-communities occur in. The vegetation of the *Eleocharis-Calliergon* sub-community is generally more open than either sub-community a or b, and the presence of plant species such as *Sagina nodosa*, *Drepanocladus aduncus* and *Parnassia palustris* indicate an increased level of base-enrichment.

Distribution within the survey area

The *Nasturtium-Apium* community has a widespread distribution throughout the study area, being recorded from almost 100% of the sites visited. Although the typical sub-community is evenly distributed throughout the study area, sub-community b and c show distinct distributional tendencies with b being largely restricted to counties Donegal and Sligo while c is largely restricted to counties Galway and Mayo.

Affinities

Although an outline description of S23 was presented in Rodwell (1995) a full phytosociological account was not presented. This type of ditch vegetation has been frequently described from continental Europe and Ireland where it is usually placed in the Nasturtietum officinale, an association within the Glycerio-

Sparganion alliance. It has a widespread distribution in Ireland being especially common in eutrophic ditches in agricultural areas (White and Doyle 1982).

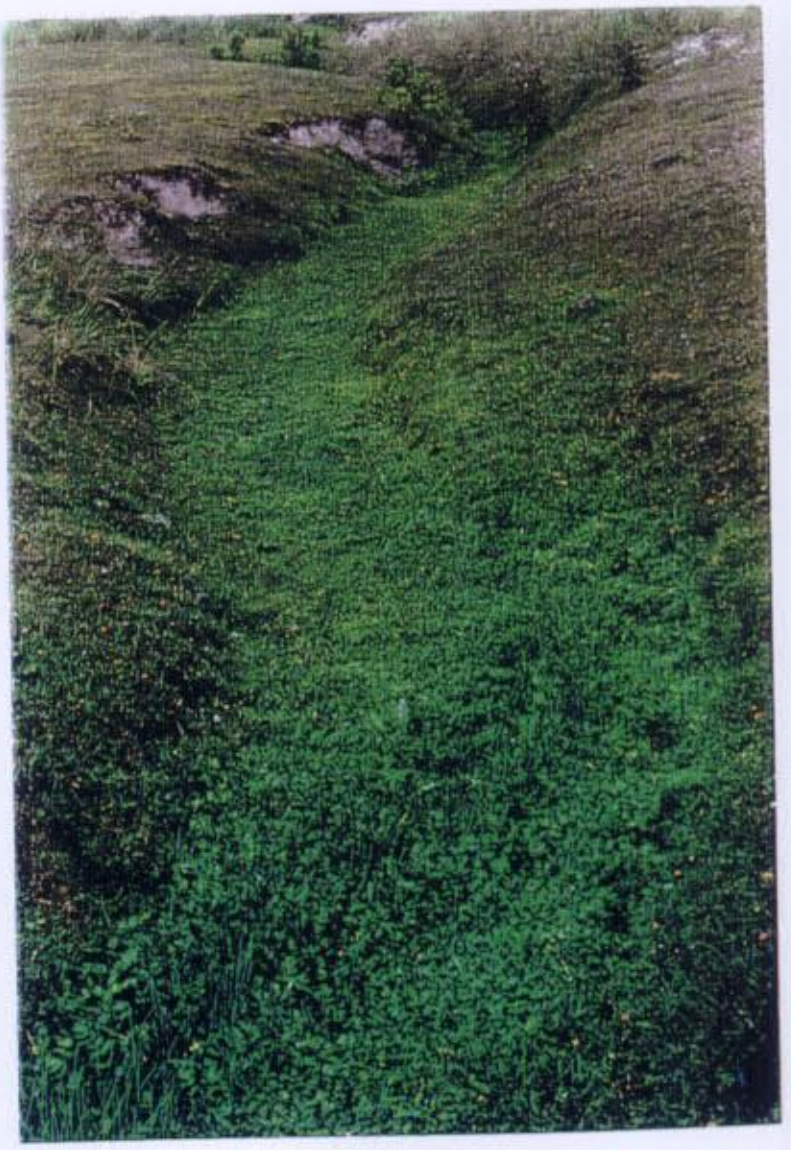
Table S23

Sub-community	A	B	C
Slope, degrees	1.33 (0-8)	0.2 (0-5)	1 (0-10)
Herb height, centimetres	14 (1-50)	34 (10-80)	26 (3-130)
Herb cover (%)	71 (15-100)	85 (60-100)	78 (25-95)
Moss cover (%)	1 (0-20)	0.9 (0-10)	39 (5-95)
pH (2 numerals no point)	7.8 (7.2-8.3)	7.5	7.9 (7.6-8.1)
Bare rock (talus,outcrops,shi	0	0	0
Bare soil (including sand)	11 (0-50)	0.8 (0-10)	10 (0-70)
Open water (%)	53 (0-100)	36 (0-100)	18 (0-80)
Nasturtium officinale	V	V	IV
Agrostis stolonifera	IV	IV	V
Apium nodiflorum	IV	V	IV
Glyceria fluitans		V	I
Veronica beccabunga	I	II	I
Alopecurus geniculatus		II	
Poa trivialis		II	I
Eleocharis palustris	II	II	IV
Juncus articulatus	II	II	IV
Calliergon cuspidatum	I		IV
Epilobium palustre	I	I	III
Hydrocotyle vulgaris	I		III
Myosotis laxa caespitosa	I	I	III
Sagina procumbens	I		II
Cardamine pratensis		I	II
Mentha aquatica		I	II
Galium palustre		I	II
Sagina nodosa			II
Drepanocladus aduncus			II
Bryum pseudotriquetrum			II
Bellis perennis			I
Anagallis tenella			I
Parnassia palustris			I
Scirpus setaceus			I
Triglochin palustre	II	I	II
Juncus bufonius	I	II	II
Lemna minor	I	I	II
Veronica anagallis-aquatica	I	I	II
Epilobium parviflorum	I	I	II
Holcus lanatus	I	I	I
Catabrosa aquatica	I	I	I
Carex nigra	I	I	I
Ranunculus repens	I	I	I
Caltha palustris	I	I	I
Myosotis seedling/sp	I	I	I
Epilobium hirsutum	I	I	I
Berula erecta	I	I	I
Callitriche stagnalis	I	I	I
Callitriche seedling/sp	I	I	
Sparganium erectum	I	I	
Carex flacca	I		I
Iris pseudacorus	I		I
Poa annua	I		I
Rumex crispus	I		I
Samolus valerandi	I		I
Apium inundatum	I		I
Glaux maritima	I		I
Drepanocladus revolvens	I		I
Chara sp	I		I
Philonotis fontana	I		I
Pellia epiphylla	I		I
Lolium perenne	I		I
Equisetum fluviatile		I	I
Juncus effusus		I	I

	A	B	C
Potentilla anserina		I	I
Cerastium fontanum		I	I
Juncus acutiflorus		I	I
Poa pratensis		I	I
Polygonum amphibium		I	I
Polygonum persicaria		I	I
Brachythecium rutabulum		I	I
Rhytidiadelphus squarrosus		I	I
Taraxacum officinale agg.		I	I
Dactylorhiza incarnata	I		
Eriophorum angustifolium	I		
Montia fontana	I		
Catapodium rigidum	I		
Tussilago farfara	I		
Agrostis capillaris	I		
Angelica sylvestris	I		
Ranunculus trichophyllus	I		
Fontinalis antipyretica	I		
Aneura pinguis	I		
Algal mat	I		
Ranunculus acris		I	
Equisetum arvense		I	
Equisetum palustre		I	
Mimulus guttatus		I	
Lemna sp		I	
Plantago major		I	
Senecio jacobaea		I	
Festuca rubra			I
Plantago coronopus			I
Ranunculus flammula			I
Scirpus maritimus			I
Calliergon giganteum			I
Ranunculus seedling/sp			I
Potamogeton obtusifolius			I
Scirpus lacustris tabernaemont			I
Marchantia polymorpha			I
Apium inundatum			I
Carex arenaria			I
Cirsium arvense			I
Cirsium vulgare			I
Hippuris vulgaris			I
Leontodon autumnalis			I
Linum catharticum			I
Lycopus europaeus			I
Oenanthe lachenalii			I
Petasites hybridus			I
Rumex acetosa			I
Rumex conglomeratus			I
Rumex obtusifolius			I
Senecio aquaticus			I
Stellaria alsine			I
Trifolium pratense			I
Cratoneuron commutatum			I
Plagiomnium affine			I
Plagiomnium rostratum			I
Drepanocladus sp			I
Mean number of species	7	10	16
Number of samples	26	13	26

a = Typical sub-community
b = Glyceria fluitans sub-community
c = Eleocharis palustris-Calliergon cuspidatum sub-community

96503.06



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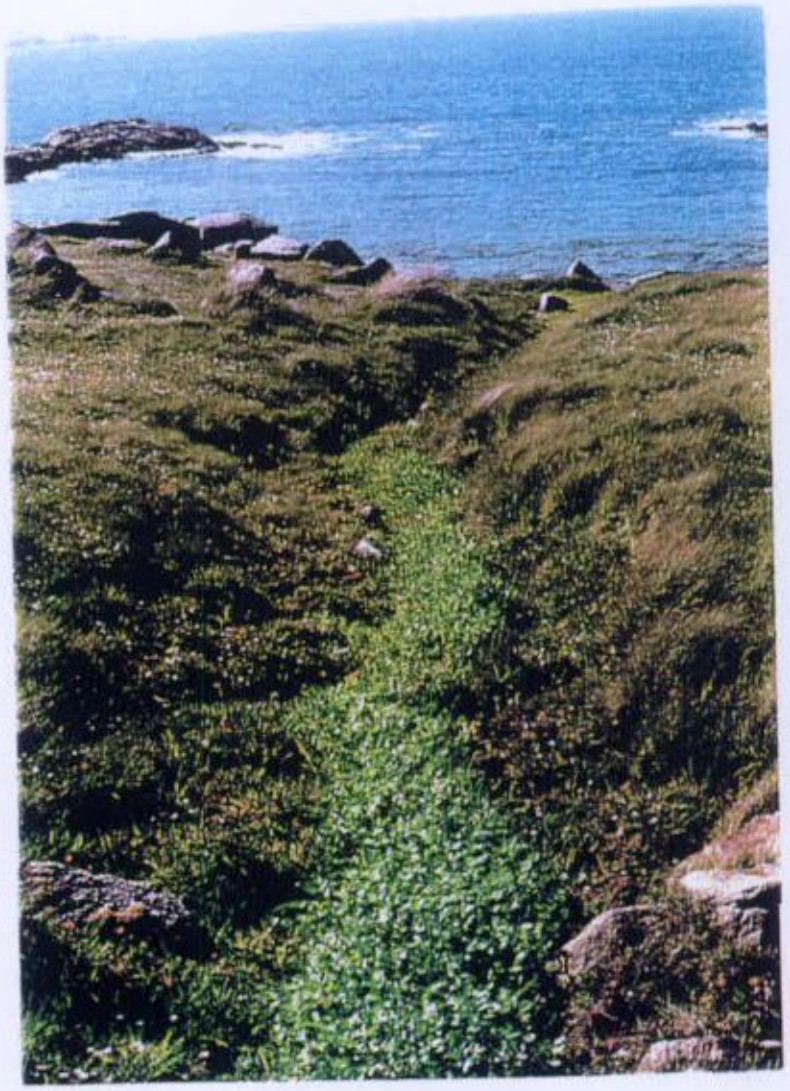

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SX1

Carex diandra-Menyanthes trifoliata community

Synonymy

Caricetum diandrae Dierrsen 1982

Constant species

Menyanthes trifoliata, Epilobium palustre, Agrostis stolonifera, Carex diandra, Hydrocotyle vulgaris

Species of note

Carex diandra, Epipactis palustris, Rumex hydrolapathum

Floristic composition and structure

The *Carex diandra-Menyanthes* community is a species-rich swamp vegetation type (mean = 16 species per quadrat) characterised by the prominence of both *C. diandra* and *Menyanthes* accompanied by the community constants *Agrostis stolonifera, Epilobium palustre, Hydrocotyle vulgaris* and *Calliergon cuspidatum*. The vegetation is visually dominated by *C. diandra* and *Menyanthes* with the former usually reaching a height of c. 50 cm. The community can be divided into two sub-communities, a and b. Sub-community a is more species-poor than b and generally has a poorly developed bryophyte layer. Sub-community b, on the other hand, is species-rich and is differentiated by the presence or increased frequency of *Hydrocotyle vulgaris, Calliergon cuspidatum, Cardamine pratensis, Caltha palustris, Equisetum fluviatile, Ranunculus flammula, Carex rostrata, Bryum pseudotriquetrum, Juncus acutiflorus* and *Lychnis flos-cuculi*.

Habitat

This community is generally restricted to small areas within floating rafts of swamp vegetation which develop around the edges of large coastal lakes. The

community is often surrounded by, and grades into, the *Galium palustre-Mentha aquatica* sub-community of the *Carex nigra* fen (SX3) on the landward side while the *Carex rostrata* swamp (S9) is frequently the adjacent vegetation type along the open-water transition. The species-poor sub-community tends to occur in the wettest, more base-poor habitats which do not appear to favour the development of an extensive bryophyte carpet. Although no pH determinations were carried out on soils associated with this community it seems likely, from the composition of the associated flora, that the soil pH is circumneutral and that the habitat is moderately base-enriched.

Distribution within the sudy area

This community has a restricted distribution within the study area being confined to four sites, two of which are in County Mayo (Dooaghtry and Termoncarragh), with one each in counties Donegal (Sheskinmore) and Sligo (Bunduff).

Affinities

Although Sub-community b of the *Carex-Menyanthes* swamp has a close floristic affinity with the *Carex diandra-Calliergon giganteum* sub-community of *the Carex rostrata- Calliergon cuspidatum* mire (M9) outlined in the NVC (Rodwell, 1991), a separate community has been described in this study to draw attention to the fact that a distinctive vegetation type dominated by *Carex diandra* and *Menyanthes trifoliata* does exist and is easily recognizable in the field. It is also noteworthy that *Carex rostrata*, though present in many of the quadrats, never comes close to being the physiognomic dominant. In Ireland, vegetation types dominated by *Carex diandra* have received some attention and comparisons can be made with other studies. Sub-community a of the *C. diandra-Menyanthes* community outlined in this study is most similar to the *Carex diandra* sub-community (a) of the *Carex diandra* community described from the margins of lakes in Northern Ireland by Wolfe-Murphy *et al.* (1992).

Table SX1

Sample number	1139	656	760	1089	517	651	652	1100	1143	
Sub-community	a	a	b	b	b	b	b	b	b	
Slope, degrees	0	0	0	0	0	0	0	0	0	
Herb height, centimetres	35	125	20	40	15	60	40	50	40	
Shrub cover (%)	0	0	0	0	0	0	3	0	0	
Herb cover (%)	85	100	65	60	85	95	85	98	80	
Moss cover (%)	0	0	100	98	65	85	90	70	90	
Open water (%)	95	0	0	0	85	0	0	0	0	
										Constancy
Menyanthes trifoliata	7	7	8	4	9	8	7	4	5	V
Epilobium palustre	2	6	4	1	3	3	3	1	3	V
Agrostis stolonifera	2	4	4		4	4	3	4	4	V
Carex diandra	7	5		6		5	6	4	7	IV
Hydrocotyle vulgaris			2	3	3	3	4	6	5	IV
Calliergon cuspidatum				10	5	8	9	8	9	IV
Cardamine pratensis					3	2	3	3	1	III
Caltha palustris			4		3	3		5		III
Equisetum fluviatile					4	6	5	2		III
Ranunculus flammula	2					2		3	3	III
Carex rostrata							2	5	3	II
Bryum pseudotriquetrum						2	3	3		II
Juncus acutiflorus						3		6		II
Lychnis flos-cuculi						2			3	II
Galium palustre		3		3	4			4	3	III
Potentilla palustris	2			4		2	1		2	III
Eriophorum angustifolium				2	3	1			5	III
Angelica sylvestris		2				3	2			II
Holcus lanatus				2		2			3	II
Juncus articulatus	4			2					4	II
Sagina nodosa			4				1	2		II
Berula erecta	3							2		II
Carex nigra	3					5				II
Equisetum palustre					3	4				II
Iris pseudacorus		3		5						II
Mentha aquatica		4						3		II
Pedicularis palustris				4				3		II
Triglochin palustre			2	2						II
Plagiomnium rostratum				4				4		II
Lophocolea bidentata			3					4		II
Aneura pinguis			2			2				II
Apium nodiflorum								3		I
Carex lepidocarpa					2					I
Carex limosa									5	I
Cerastium fontanum			3							I
Dactylorhiza fuchsii						1				I
Epilobium hirsutum		3								I
Epipactis palustris						3				I
Hypericum elodes								5		I
Myosotis laxa caespitosa								3		I
Phragmites australis									3	I
Bilderdykia convolvulus		4								I
Potamogeton polygonifolius	3									I
Rumex acetosa			2							I
Rumex hydrolapathum		4								I
Sagina procumbens						4				I
Scirpus maritimus		5								I
Senecio aquaticus								1		I
Stellaria alsine								3		I
Typha latifolia				2						I
Brachythecium rutabulum			9							I
Campylium stellatum						2				I
Cratoneuron filicinum			4							I
Drepanocladus aduncus					7					I
Salix cinerea ssp oleifolia							2			I
Myosotis seedling/sp									4	I
Bryum sp			3							I
Lophocolea sp				3						I
Number of species	10	12	14	16	13	24	14	25	18	Mean = 16

a = Typical sub-community
b = Calliergon cuspidatum-Hydrocotyle vulgaris sub-community

SX2

Iris pseudacorus community

Constant species

Iris pseudacorus, Agrostis stolonifera

Species of note

Urtica urens, Oenanthe lachenalii

Floristic composition and structure

This community includes relatively species-poor vegetation (mean = 10 species per quadrat) dominated by *Iris pseudacorus* which can attain a height of 120 cm. The dominant species can cover between 25% and 90% of the quadrat and may attain complete cover in places. Although *Iris* was also recorded from a number of wetland communities during the survey, this is the only community in which the species is the physiognomic dominant. The shaded understorey flora is relatively sparse and is dominated by the grasses *Agrostis stolonifera, Holcus lanatus* and *Poa trivialis. Apium nodiflorum, Potentilla anserina, Polygonum persicaria* and the moss *Calliergon cupidatum* are also present in at least 20% of the quadrats.

Habitat

This community is found in a range of damp habitats, however the most common habitats are wet peaty ditches close to coastal lakes and soakways which run through *Festuca-Galium* grassland. In the latter habitat there is usually a thin layer of damp peat overlying the sandy substrate, however during the Summer months there is rarely any surface water visible.

Distribution within the survey area

Although this vegetation type has a widespread distribution within the survey area it is rare in Co. Donegal and is most frequent in sites towards the south of the study area, i.e. *Counties Mayo* and Galway.

Affinities

Although this community has close affinities with the *Juncus effusus-J. acutiflorus* sub-community of the *Iris pseudacorus-Filipendula ulmaria* mire M28, the absence or greatly reduced cover of important diagnostic species such as *Filipendula ulmaria, Oenanthe crocata, Juncus effusus, Ranunculus acris* and *Juncus acutiflorus* is noteworthy. The absence of *Juncus, Filipendula* and *Oenanthe* from the community recorded in this study demonstrates that it occurs in drier habitat conditions. The clear differences highlighted here highlights the need for the description of an *Iris* community occurring on damp sandy substrates in coastal areas of Ireland. Mooney and O'Connell (1990) describe an *Iris* community from Lower Lough Corrib and some of these samples have a similar vegetation composition to the community outlined here.

Table SX2

Sample number	371	759	1006	1400	1285	540	1078	1088	1180	1184	1391	
Slope, degrees	0	0	0	10	0	0	0	0	5	0	0	
Aspect, degrees	0	0	0	360	0	0	0	0	320	0	0	
Herb height, centimetres	120	120	70	50	100	70	110	120	120	60	60	
Herb cover (%)	85	100	100	55	100	100	100	100	90	100	100	
Moss cover (%)	0	0	0	0	40	0	10	0	10	80	30	
Bare soil (including sand)	0	0	0	100	5	0	10	5	10	0	0	
Open water (%)	70	10	0	0	0	0	0	0	0	0	0	
												Constancy
Iris pseudacorus	8	8	9	6	9	8	9	8	9	6	8	V
Agrostis stolonifera		4	4	4	6	4		7		7		IV
Holcus lanatus						3	4	2	3	2	3	III
Potentilla anserina					5	5	2			2	4	III
Poa trivialis			3			7			4		4	II
Calliergon cuspidatum					4		4		4		6	II
Apium nodiflorum		7							3	3		II
Polygonum persicaria				2	1						4	II
Trifolium repens				5			2		3			II
Berula erecta					3			3				I
Carex otrubae					2						1	I
Equisetum palustre										3	4	I
Filipendula ulmaria							3				7	I
Galium palustre					3					4		I
Hydrocotyle vulgaris			3		3							I
Lathyrus pratensis							2				2	I
Myosotis laxa caespitosa									2	3		I
Ranunculus acris						3					5	I
Ranunculus repens					3					2		I
Nasturtium officinale	5								4			I
Trifolium pratense						2	2					I
Urtica dioica			3	3								I
Veronica chamaedrys						2	3					I
Festuca rubra						4						I
Agrostis capillaris							5					I
Angelica sylvestris							2					I
Bellis perennis									2			I
Callitriche stagnalis	2											I
Carex nigra										4		I
Catapodium rigidum				2								I
Cerastium diffusum				3								I
Cirsium arvense						4						I
Convolvulus arvensis											5	I
Dactylis glomerata							4					I
Dactylorhiza maculata ssp.						3						I
Eleocharis palustris								2				I
Epilobium palustre											2	I
Equisetum arvense						3						I
Equisetum fluviatile								3				I
Glyceria fluitans	4											I
Juncus acutiflorus										4		I
Juncus effusus							3					I
Lolium perenne									2			I
Mentha aquatica								3				I
Oenanthe lachenalii					2							I
Phragmites australis										6		I
Polygonum amphibium										7		I
Potentilla erecta							2					I
Rhinanthus minor									1			I
Rumex acetosa						2						I
Rumex crispus						1						I
Sedum acre				3								I
Typha latifolia								3				I
Urtica urens			5									I
Veronica beccabunga									3			I
Drepanocladus aduncus										9		I
Taraxacum officinale agg.				2								I
Number of species	4	3	6	9	11	14	14	8	12	14	13	Mean = 10

96503.32

96503.02

SX3

Carex nigra community

Synonymy

Ranunculo-Potentilletum anserinae Braun-Blanquet et Tuxen 1952 p.p.

Constant species

Carex nigra, Agrostis stolonifera, Hydrocotyle vulgaris, Calliergon cuspidatum

Species of note

Ophioglossum vulgatum, Carex diandra, Eleocharis uniglumus, Oenanthe lachenalii, Bidens cernua

Floristic composition and structure

The *Carex nigra* fen is a variable wetland community which is characterised by the presence of four community constants *Carex nigra, Agrostis stolonifera, Hydrocotyle vulgaris* and the moss *Calliergon cuspidatum*. The total herb cover in this community is high covering c. 80% of the quadrat with the moss layer covering, on average 40% of the quadrat area. The cover of *Carex nigra* can vary greatly, however the species generally covers more than 25%. *Carex nigra* itself is absent from some of the quadrats, however these samples are retained in this community because of overall floristic similarity. The community is sub-divided into three sub-communities which each have a distinctive floristic composition and ecology. Sub-community a (the *Potentilla anserina* sub-community) is characterised by the increased presence of *Potentilla anserina, Carex arenaria, Ophioglossum vulgatum* and *Rumex crispus*. The low-growing shrub, *Salix repens* is locally frequent in this sub-community and when present can cover up to 90% of the quadrat. The *Potentilla* sub-community is the most species-poor of the three sub-communities, supporting, on average 14 species per quadrat. Sub-community b (the *Holcus lanatus-Festuca rubra* sub-community) is much more

species-rich, supporting an average of 23 species per quadrat with wet grassland/fen species such as *Holcus lanatus*, *Festuca rubra*, *Leontodon autumnalis*, *Bellis perennis*, *Carex flacca* and *Prunella vulgaris* predominating. It is also noteworthy that the *Holcus-Festuca* sub-community has the lowest average herb height of the three sub-communities due, in part, to the fact that it is often grazed by cattle and sheep. Sub-community c (the *Galium palustre-Mentha aquatica* sub-community) is the wettest of the three sub-communities noted and this is demonstrated by the increased presence of wetland/swamp species such as *Galium palustre*, *Mentha aquatica*, *Ranunculus flammula*, *Myosotis laxa* and *Bryum pseudotriquetrum*.

Habitat

The different sub-communities which make up the *Carex nigra* fen are each restricted to different habitats. The *Potentilla* sub-community typically occurs as an extensive flat slack areas, situated immediately behind sand-dunes. It occurs on a sandy substrate which is often flooded for most of the winter but usually dries out during the summer. The *Holcus-Prunella* sub-community occurs in areas in which the soil is constantly damp right throughout the year. The vegetation sometimes occurs as extensive flat areas on the landward side of the *Potentilla* sub-community. This sub-community is in may respects an intermediate one, being transitional towards both the *Festuca rubra-Agrostis stolonifera-Potentilla anserina* grassland (M11) and the *Carex dioica-Pinguicula vulgaris* mire (M10). The *Galium palustre-Mentha aquatica* community is the wettest expression of the *Carex nigra* fen and thus can be considered to be transition to the wetter *Carex nigra-Hydrocotyle vulgaris* community. Although these three sub-communities show a distinct ecological gradient from slack (with a seasonally fluctuating watertable) to permanently wet marsh, the three sub-communities rarely occur together in the field. When the pH values of soils associated with these three sub-communities are compared there is little difference between sub-communities a and b (mean pH of 7.9 and 7.8 respectively), however the mean pH of sub-community c is lower at 6.9. This difference is attributable to the fact that sub-community c is rooted in a wetter, peatier substrate.

Distribution within the survey area

The *Carex nigra* fen is a widespread and common community which was recorded from almost all of the sites visited during this survey. All three sub-communities appear to be evenly distributed throughout the study area with the notable exception of the *Holcus-Festuca* sub-community which is very rare in Co. Galway.

Affinities

The treatment and classification of species-rich wetland vegetation occurring behind sand-dunes in this study differs markedly to that outlined by the NVC. In this study different variants of *Carex nigra*-dominated vegetation are outlined in order to explain wetland zonations at the sites visited. In this system slack areas with a dominance of *Salix repens*, but with *Carex nigra* and/or *Potentilla anserina*, generally fall within the *Potentilla anserina* sub-community. The *Potentilla* sub-community and *the Galium-Mentha* sub-communities are floristically close to some of the Ranunculo-Potentilletum anserinae stands recorded from Turloughs in counties Clare and Galway, outlined by O'Connell *et al.* (1984).

Table SX3

Sub-community	A	B	C
Slope, degrees	1 (0-20)	1.6 (0-25)	0.3 (0-4)
Herb height, centimetres	27 (2-120)	13 (3-30)	43 (2-250)
Herb cover (%)	83 (20-100)	89 (50-100)	86 (60-100)
Moss cover (%)	41 (2-95)	34 (1-95)	42 (1-100)
pH (2 numerals no point)	7.9 (7.4-8.3)	7.8 (6.2-8.5)	6.9 (6.0-7.6)
Bare rock (talus,outcrops	5.0 (0-70)	0.3 (0-10)	7.9 (0-40)
Bare soil (including sand)	0.7 (0-20)	1.8 (0-20)	2.4 (0-20)
Agrostis stolonifera	V	IV	V
Carex nigra	IV	V	IV
Hydrocotyle vulgaris	IV	V	IV
Calliergon cuspidatum	IV	III	V
Potentilla anserina	IV	II	I
Carex arenaria	II	I	
Ophioglossum vulgatum	I		
Rumex crispus	I		
Holcus lanatus	II	IV	II
Leontodon autumnalis	I	IV	I
Bellis perennis	I	IV	I
Festuca rubra	I	IV	I
Carex flacca	I	IV	I
Prunella vulgaris	I	IV	I
Lotus corniculatus	I	IV	I
Plantago maritima	I	III	
Poa pratensis	II	III	I
Anagallis tenella	I	III	I
Cynosurus cristatus	I	III	I
Plantago lanceolata	I	III	I
Trifolium pratense	I	III	I
Euphrasia officinalis agg	I	III	I
Parnassia palustris		III	I
Selaginella selaginoides		III	
Carex pulicaris	I	II	
Pinguicula vulgaris		I	
Eleocharis quinqueflora		I	
Galium palustre	II	I	V
Mentha aquatica	II	I	IV
Ranunculus flammula	I	II	IV
Myosotis laxa caespitosa	I		III
Bryum pseudotriquetrum	I	I	II
Apium nodiflorum	I		II
Epilobium palustre	I		II
Equisetum fluviatile	I	I	II
Lythrum salicaria	I	I	II
Epilobium parviflorum	I		II
Caltha palustris	I		II
Juncus articulatus	II	III	IV
Trifolium repens	III	IV	II
Eleocharis palustris	III	I	III
Ranunculus acris	II	III	I
Ranunculus repens	II	I	II
Cardamine pratensis	II	I	II
Salix repens agg	II	II	I
Triglochin palustre	I	I	II
Glaux maritima	I	II	I
Ranunculus bulbosus	I	II	I
Carex panicea	I	I	I
Senecio aquaticus	I	I	I
Campylium stellatum	I	I	I
Taraxacum officinale agg	I	I	I
Anthoxanthum odoratum	I	I	I
Lychnis flos-cuculi	I	I	I
Sagina procumbens	I	I	I
Eriophorum angustifolium	I	I	I
Juncus acutiflorus	I	I	I
Rhinanthus minor	I	I	I
Carex echinata	I	I	I
Dactylorhiza incarnata	I	I	I
Brachythecium albicans	I	I	I
Linum catharticum	I	I	I
Cirsium dissectum	I	I	I
Carex demissa	I	I	I
Molinia caerulea	I	I	I

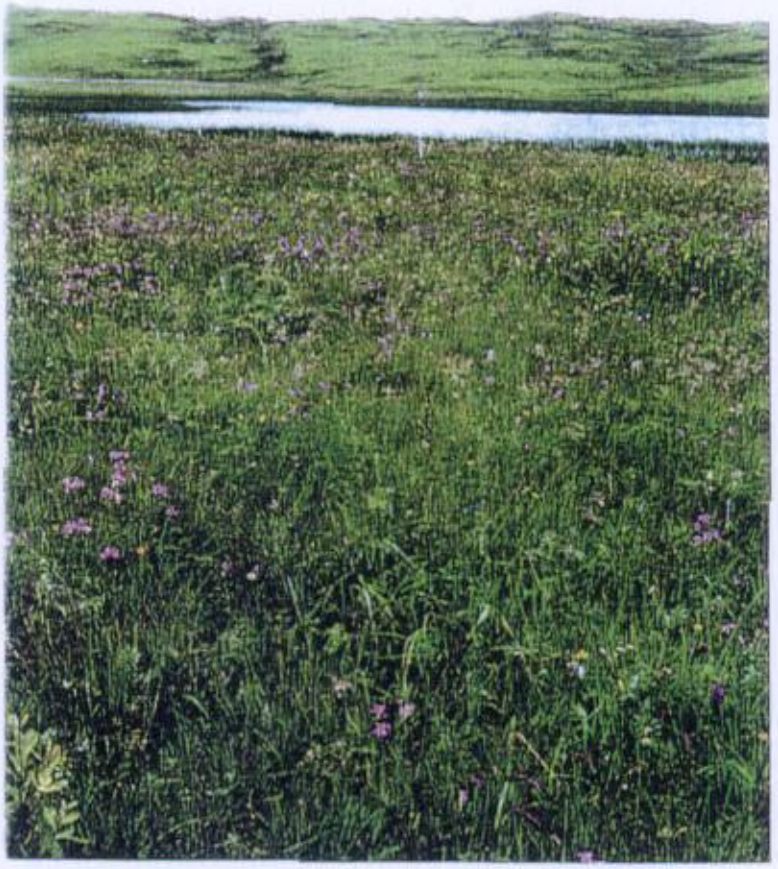
	A	B	C
Odontites vernus	I	I	I
Fissidens adianthoides	I	I	I
Brachythecium rutabulum	I	I	I
Trigiochin maritimum	I	I	I
Scirpus setaceus	I	I	I
Eurhynchium praelongum	I	I	I
Equisetum palustre	I	I	I
Vicia cracca	I	I	I
Drepanocladus revolvens	I	I	I
Cerastium fontanum	I	I	I
Rhytidiadelphus squarrosus	I	II	
Potentilla anglica	I	I	
Succisa pratensis	I	I	
Equisetum arvense	I	I	
Leontodon taraxacoides	I	I	
Cirsium vulgare	I	I	
Lophocolea bidentata	I	I	
Agrostis canine	I	I	
Plantago coronopus	I	I	
Cerastium glomeratum	I	I	
Bryum sp	I	I	
Viola riviniana	I	I	
Homalothecium lutescens	I	I	
Cirsium palustre	I	I	
Gentianella campestris	I	I	
Koeleria macrantha	I	I	
Lolium perenne	I	I	
Polygala vulgaris	I	I	
Pleurozium schreberi	I	I	
Iris pseudacorus	I		II
Menyanthes trifoliata	I		I
Polygonum amphibium	I		I
Phragmites australis	I		I
Berula erecta	I		I
Filipendula ulmaria	I		I
Juncus effusus	I		I
Potentilla palustris	I		I
Nasturtium officinale	I		I
Alopecurus geniculatus	I		I
Angelica sylvestris	I		I
Carex distans	I		I
Glycera fluitans	I		I
Dactylorhiza fuchsii	I		I
Stellaria alsine	I		I
Drepanocladus aduncus	I		I
Scirpus maritimus	I		I
Juncus bulbosus	I		I
Sonchus sp	I		I
Polygonum sp	I		I
Pedicularis palustris	I		I
Rumex acetosa	I		I
Philonotis fontana	I		I
Brachythecium rivulare	I		I
Aneura pinguis		I	I
Centaurea nigra		I	I
Dactylorhiza sp		I	I
Plagiomnium undulatum		I	I
Mnium hornum		I	I
Plagiomnium sp		I	I
Centaurium erythraea		I	I
Hypericum tetrapterum	I		
Plagiomnium rostratum	I		
Juncus gerardi	I		
Viola canina	I		
Arrhenatherum elatius	I		
Cardamine flexuosa	I		
Elymus repens	I		
Deschampsia cespitosa cespitos	I		
Lathyrus pratensis	I		
Potentilla reptans	I		
Epilobium hirsutum	I		
Salix cinerea seedling	I		
Viola palustris	I		
Bryum capillare	I		
Festuca ovina	I		
Myosotis secunda	I		
Dactylorhiza majalis	I		
Nostoc sp	I		
Trifolium dubium	I		
Veronica arvensis	I		
Plantago major	I		

	A	B	C
Lophocolea cuspidata	I		
Lophocolea heterophylla	I		
Sonchus asper	I		
Tussilago farfara	I		
Poa annua	I		
Polygonum persicaria	I		
Danthonia decumbens		I	
Potentilla erecta		I	
Pseudoscleropodium purum		I	
Pellia epiphylla		I	
Senecio jacobaea		I	
Climacium dendroides		I	
Rhytidiadelphus triquetrus		I	
Barbula sp		I	
Thuidium tamariscinum		I	
Achillea millefolium		I	
Crepis capillaris		I	
Dactylis glomerata		I	
Daucus carota		I	
Eleocharis uniglumis		I	
Ctenidium molluscum		I	
Blackstonia perfoliata		I	
Hypnum cupressiforme		I	
Listera ovata		I	
Salix aurita seedling		I	
Cladonia ciliata var tenuis		I	
Peltigera canina		I	
Thymus praecox arcticus		I	
Nardus stricta		I	
Oenanthe lachenalii		I	
Galium verum		I	
Schoenus nigricans		I	
Armeria maritima		I	
Agrostis capillaris		I	
Luzula campestris		I	
Sparganium erectum			I
Bidens cernua			I
Samolus valerandi			I
Carex rostrata			I
Juncus bufonius			I
Scirpus fluitans			I
Veronica anagallis-aquatica			I
Plagiomnium affine			I
Apium inundatum			I
Hippuris vulgaris			I
Hypericum elodes			I
Potamogeton polygonifolius			I
Scirpus lacustris tabernaemont			I
Veronica scutellata			I
Calliergon giganteum			I
Marchantia polymorpha			I
Alnus glutinosa sapling			I
Baldellia ranunculoides			I
Carex diandra			I
Carex lasiocarpa			I
Gymnadenia conopsea			I
Potamogeton natans			I
Veronica beccabunga			I
Cratoneuron filicinum			I
Scorpidium scorpioides			I
Tortella tortuosa			I
Salix cinerea ssp oleifolia			I
Salix atrocinerea sapling			I
Mean number of species	14	23	18
Number of samples	61	32	45

a = Potentilla anserina sub-community
b = Holcis lanatus-Festuca rubra sub-community
c = Galium palustre-Mentha aquatica

96921.30

96925.02



96913.20

96922.13

SX4

Carex paniculata swamp

Constant species

Carex paniculata, Equisetum fluviatile, Holcus lanatus, Hydrocotyle vulgaris, Aneura pinguis, Calliergon cuspidatum

Floristic composition and structure

This relatively species-rich swamp community is dominated by the tall tussock-forming sedge *Carex paniculata*. The associated flora is well developed in the spaces between the tussocks which reach a general height of c. 60cm. The constant associated species are *Equisetum fluviatile, Holcus lanatus, Hydrocotyle vulgaris, Aneura pinguis* and *Calliergon cuspidatum*. Although the two samples recorded are quite similar in terms of floristic composition, sample 1292 has a high cover of *Menyanthes trifoliata* and a much higher bryophyte cover than sample 529.

Habitat

The community is confined to very wet areas of base-rich fens. In such situations the substratum consists of an unstable mat of vegetation and soil development is limited to a brown/black soupy peat. The community is found in close contact with a number of swamp communities, most notably the *Cladium mariscus* swamp and the *Phragmites australis* swamp.

Distribution within the survey area

Due to the scarcity of base-rich fen habitat at the sites visited, this *Carex paniculata* community was recorded from only two sites during this study, Sheskinmore, Co. Donegal and Slyne Head, Co. Galway

Affinities

Although *Carex paniculata* has been recorded from a number of swamp communities outlined by the NVC they are a poor fit for the *Carex paniculata* swamp described in this study. The NVC *Carex paniculata* swamp (S3) is more species-poor than the present community (mean of 8 species per sample) and the same is true of the *Carex paniculata* sub-community of the *Phragmites-Eupatorium* fen (S25). The closest fit with an NVC sub-community is the *Carex paniculata* sub-community of the *Peucedanum/Phragmites* fen (S24), however many of the constant species for the community, e.g. *Peucedanum palustre*, *Lysmachia vulgaris*, *Eupatorium cannabinum* and *Lythrum salicaria* are absent from the samples recorded in this study. Mooney and O'Connell (1990) have described a *Carex paniculata* community from Lough Corrib which is similar both in species composition and species-richness to the community outlined in this study. The data recorded in this study also agrees closely with the *Carex paniculata* community described from Northern Ireland by Wolfe-Murphy *et al.* (1992).

Table SX4

Sample number	529	1292	
Slope, degrees	0	0	
Herb height, centimetres	150	70	
Herb cover (%)	99	90	
Moss cover (%)	5	80	
Open water (%)	100	3	
			Constancy
Carex paniculata	9	7	V
Equisetum fluviatile	4	3	V
Holcus lanatus	3	3	V
Hydrocotyle vulgaris	2	4	V
Calliergon cuspidatum	3	5	V
Aneura pinguis	2	3	V
Filipendula ulmaria	4		III
Callitriche stagnalis	3		III
Phragmites australis	3		III
Ranunculus acris	3		III
Dactylorhiza fuchsii	2		III
Equisetum palustre	2		III
Myosotis laxa caespitosa	2		III
Plantago lanceolata	2		III
Succisa pratensis	2		III
Cratoneuron filicinum	2		III
Angelica sylvestris	1		III
Menyanthes trifoliata		7	III
Campylium stellatum		5	III
Cratoneuron commutatum		5	III
Drepanocladus revolvens		5	III
Cratoneuron sp		5	III
Calliergon giganteum		4	III
Carex lepidocarpa		3	III
Cerastium fontanum		3	III
Philonotis fontana		3	III
Juncus subnodulosus		3	III
Mentha aquatica		3	III
Rumex acetosa		3	III
Cladium mariscus		2	III
Juncus articulatus		2	III
Agrostis stolonifera		2	III
Number of species	17	22	Mean = 20

AQUATIC COMMUNITIES

A7

Nymphaea alba community

Synonymy

Nymphaeetum albae Oberdorfer and Mintarb. 1967

Constant species

Nymphaea alba

Floristic composition and structure

This distinctive aquatic community is dominated by the floating leaves of white water-lily, *Nymphaea alba* with the cover of the species varying between 35 and 70%. The community composition ranges from single-species stands to examples in which the emergents *Phragmites australis* and *Menyanthes trifoliata* are prominent. Other species which occur sparsely include *Equisetum fluviatile*, *Potamogeton natans*, *Baldelia ranunculoides* and *Scirpus lacustris* ssp *tabernaemontani*.

Habitat

This community is restricted to larger water-bodies which have a peaty bottom. Water depth usually exceeds 2 metres, however in some cases the community grows floating on the surface of a loose matrix of muddy peat and water. When the community occurs there is generally a transition to *Phragmites australis* swamp and sometimes it is difficult to ascertain the boundaries between the two communities. Although pH determinations were not carried out on the associated surface waters it is likely that the lakes are relatively base-poor.

Distribution within the study area

Although this community was recorded infrequently, it is widely distributed in the study area being recorded from 2 sites in Co. Donegal (Melmore and Sheskinmore), 1 site in Co. Mayo (Dooaghtry) and 2 sites in Co. Galway (Omey and Dogs bay).

Affinities

The vegetation described in this study is synonymous with the *Nymphaea alba* community described by the NVC. The species-poor nature of the samples collected suggests that they correspond to A7a (the species-poor sub-community). Species-poor *Nymphaea alba* communities are relatively common in the north and west of Ireland and vegetation very similar to the community recorded in this study have been previously recorded in Ireland by Mooney and O'Connell (1990) and Wolfe-Murphy *et al.* (1992).

Table A7

Sample number	123	551	1144	1192	1198	
Sub-community	a	a	a	a	a	
Slope, degrees	0	0	0	0	0	
Herb height, centimetres	2	50	30	60	2	
Herb cover (%)	80	60	80	40	40	
Bare soil (including sand)	0	0	0	0	0	
Open water (%)	100	100	100	100	95	
						Constancy
Nymphaea alba	6	7	8	6	7	V
Phragmites australis			4		2	II
Baldellia ranunculoides		2				I
Equisetum fluviatile		5				I
Menyanthes trifoliata			4			I
Potamogeton natans				3		I
Potentilla palustris		1				I
Scirpus lacustris tabernaemont					3	I
Ranunculus seedling/sp				3		I
Number of species	1	4	3	3	3	Mean = 3

a = species-poor sub-community

96916.25

96504.10

A9

Potamogeton natans community

Synonymy

Potamogeton natans Gesellschaft Oberdorfer 1977

Floristic composition and structure

This species-poor aquatic community contains only *Potamogeton natans* and *Nitella* spp.. The leaves of *P. natans* float at the surface of the water while *Nitella* grows submerged, straggling along the lake bottom.

Habitat

In this study this community was only recorded from an area of open water one small, peaty-bottomed bog lake in which the water is approximately 40 cms in depth. The small lake itself is surrounded by *Calluna-Erica* heath.

Distribution within the study area

This vegetation type was only recorded at one site during this study, namely Dogs Bay, Co. Galway.

Affinities

Due to the species-poor nature of the vegetation, the *Potamogeton natans* community recorded in this study is referable to sub-community a of the *Potamogeton natans* community described by the NVC. The vegetation type is a common community of base-poor lakes and ponds throughout Ireland, *cf.* Mooney and O'Connell (1990), Wolfe-Murphy *et al.* (1992).

Table A9

Sample number	1208
Sub-community	a
Slope, degrees	0
Herb height, centimetres	15
Herb cover (%)	55
Open water (%)	100
Potamogeton natans	7
Nitella spp.	4
Number of species	2

a = species-poor sub-community

96916.35

A10

Polygonum amphibium community

Synonymy

Polygonum amphibium Gesellschaft Oberdorfer 1977

Constant species

Polygonum amphibium, Eleocharis palustris

Floristic composition and structure

The amphibious perennial *Polygonum amphibium*, characterizes this community. The only other species to occur constantly *is Eleocharis palustris*, however there is also some *Isoetes lacustris, Equisetum fluviatile, Agrostis stolonifera and Brachythecium rutabulum*. In fully aquatic situations (sample 1011) *Polygonum* occurs floating on the water surface while in more terrestrial situations (sample 1361) the species grows upright, attaining a height of approximately 30 cm.

Habitat

Due to the amphibious tendencies of the species, *Polygonum amphibium* was found in two distinctly different habitats. It occurs in the shallow margins of a large lake with a peaty bottom and also along the margins of a dried up lake where the substrate consists of damp, muddy clay.

Distribution within the study area

Although *Polygonum amphibium* occurs frequently in a number of other wetland vegetation types, e.g. A13, the species-poor *Polygonum amphibium* community was noted at only three sites visited during the study, Keel Lough, Co. Mayo, Mason Island, Co. Galway and Melmore Lough, Co. Donegal.

Affinities

This study has shown that the *Polygonum amphibium* community clearly occurs in the west of Ireland, however more study needs to be carried out to determine the full geographical range and floristic diversity of the community.

Table A10

Sample number	1011	1361	
Slope, degrees	0	0	
Herb height, centimetres	2	60	
Herb cover (%)	50	100	
Moss cover (%)	0	1	
Bare soil (including sand)	0	0	
Open water (%)	100	0	
			Constancy
Polygonum amphibium	6	10	V
Eleocharis palustris	3	3	V
Isoetes lacustris	4		III
Equisetum fluviatile	3		III
Agrostis stolonifera		2	III
Brachythecium rutabulum		3	III
Number of species	4	4	Mean=4

96500.05

A11

Potamogeton pectinatus-Myriophyllum spicatum community

Synonymy

Potametum pectinato-perfoliati Den Hartog and Segal 1964

Constant species

Potamogeton pectinatus, *Myriophyllum spicatum*

Floristic composition and structure

This community is characterised by the presence of the submerged aquatics *Potamogeton pectinatus* and *Myriophyllum spicatum* accompanied by a few other sparse aquatic species including *Equisetum fluviatile*, *Baldellia ranunculoides* and *Potamogeton natans*. In common with most of the aquatic communities recorded in this study, the community is species-poor with an average of 3 species per quadrat.

Habitat

This community occurs in relatively shallow water (<50 cm deep) along the edges of large lakes which have a substrate of coarse silt or sand. These lakes are surrounded by extensive sand plains and there is generally an abrupt transition from sand-plain to open water.

Distribution within the study area

This community was recorded from large lakes at two sites during this study namely Bunduff, Co. Sligo and Cross Lough in Belmullet, Co. Mayo.

Affinities

Although the vegetation recorded in this study obviously belongs to the *Potamogeton pectinatus-Myriophyllum spicatum* community described by the NVC, none of the collected samples fit well into any of the three sub-communities described. It is clear

that further sampling of this vegetation type in Ireland is needed in order to better classify it.

Table A11

Sample number	655	664	1340	
Slope, degrees	0	0	0	
Herb height, centimetres	80	10	20	
Herb cover (%)	70	70	70	
Bare soil (including sand)	0	30	0	
Open water (%)	100	100	100	
				Constancy
Myriophyllum spicatum	8		5	IV
Potamogeton pectinatus		5	7	IV
Baldellia ranunculoides	2			II
Equisetum fluviatile	5			II
Potamogeton natans	4			II
Scirpus maritimus	3			II
Chara sp		7		II
Number of species	5	2	2	Mean=3

A13

Potamogeton perfoliatus-Myriophyllum alternifolium comm.

Synonymy

Chara-Myriophyllum alterniflorum sociation Spence 1964

Constant species

Littorella uniflora, Chara spp., Potamogeton pectinatus, Myriophyllum alternifolium, Eleocharis palustris, Polygonum amphibium

Floristic composition and structure

The vegetation of this submerged aquatic community is dominated by basal rosettes of *Littorella uniflora*. Shoots of *Chara* spp. occur straggling through the *Littorella* shoots with *Potamogeton pectinatus*, *Myriophyllum alterniflorum*, *Eleocharis palustris* and *Polygonum amphibium* also occurring as community constants. There is no bryophyte layer present due to the high water level.

Habitat

As was the case with A13 this community occurs in relatively shallow water (<50 cm deep) close to the western edge of a large coastal lake.

Distribution within the study area

This community has a very restricted distribution within the study area being recorded only in the shallow margins of Cross Lough, Belmullet, Co. Mayo.

Affinities

Although *Potamogeton perfoliatus* and *Potamogeton gramineus* are absent from the samples of this community recorded during this study, its overall floristic composition suggests that the vegetation belongs to A13. All of the samples have a closer affinity with the *Potamogeton filiformis* sub-community (a) of this community.

Table A13

Sample number	850	851	895	
Slope, degrees	0	0	0	
Herb height, centimetres	0	20	5	
Herb cover (%)	90	90	95	
Moss cover (%)	0	0	2	
Bare soil (including sand)	20	10	5	
Open water (%)	100	100	0	
				Constancy
Littorella uniflora	7	6	9	V
Chara sp.	8	7	8	V
Myriophyllum alterniflorum	3		1	IV
Eleocharis palustris		6	4	IV
Polygonum amphibium	5	4		IV
Potamogeton pectinatus	3		3	IV
Mentha aquatica		2		II
Campylium stellatum			2	II
Ranunculus seedling/sp			3	II
Number of species	5	5	7	Mean = 6

A22

Littorella uniflora-Lobelia dortmanna community

Synonymy

Littorella uniflora-Lobela dortmanna Association Birks 1973

Floristic composition and structure

This aquatic community is represented, in this study, by only one sample. The vegetation is dominated by squat rosettes of *Littorella uniflora* accompanied by sparse emergent shoots of *Equisetum fluviatile* and *Equisetum palustre*. No other vascular plant species or bryophytes are present.

Habitat

The habitat of this vegetation type consists of the silty margins of an oligotrophic lake which has a peaty bottom. At the time of survey the lake waters had receded and there was no standing water present.

Distribution within the study area

This community was only recorded from the margins of Clooney Lough, Co. Donegal.

Affinities

Despite the absence of *Lobelia dortmanna* from the community this vegetation is clearly ascribable to the *Littorella uniflora-Lobelia dortmanna* community outlined by the NVC, however it is difficult to assign the sample to one of the two sub-communities described. The vegetation also agrees well with the *Lobelia dortmanna* sub-community of the *Littorella uniflora* community described from oligotrophic lakes in Northern Ireland by Wolfe-Murphy *et al.* (1992).

Table A22

Sample number	410
Slope, degrees	0
Herb height, centimetres	25
Herb cover (%)	60
Bare soil (including sand)	40
Open water (%)	0
Littorella uniflora	6
Equisetum fluviatile	5
Equisetum palustre	5
Number of species	3

AX1

Chara community

Constant species

Chara spp.

Species of note

Potamogeton filiformis

Floristic composition and structure

The *Chara* community is defined by a high cover of *Chara* which may or may not accompanied by a sparse range of aquatic vascular plant species. Although it was often difficult to key out the samples to species level due to factors such as algal growth on the plants, *Chara vulgaris*, *Chara hispidus* and *Chara globularis* were recognised at some sites. The community is divided into two sub-communities, one with *Potamogeton natans* (b) and one without (a). The *Potamogeton natans* sub-community generally occurs in the deeper, larger waterbodies. The mean number of species present per sample is low at 4, and often the quadrats only support one species of *Chara*. Of the associated vascular plant species present only *Potamogeton natans* and *Juncus articulatus* are present in more than 20% of the community samples. True aquatic species such as *Potamogeton praelongus*, *Potamogeton filiformis*, *Potamogeton perfoliatus* and *Hippurus vulgaris* also occur occasionally.

Habitat

The main habitat for this community is the shallow margins of coastal lakes which have a sandy bottom. In such a habitat the beds of *Chara* can cover extensive areas growing submerged in water up to c. 100 cm in depth. The community can also occur in large sand-dune pools, ditches and recently dug pits in areas of *Festuca-Galium* grassland. In these pools and ditches the water depth is usually quite shallow during the Summer and sometimes the plants can become dried out, bleached and

brittle. The soil associated with this community have a high pH with two samples having pH levels of 7.5 and 8.3

Distribution within the study area

The *Chara* community is generally restricted to the larger sites surveyed with most of the samples being recorded from counties Mayo and Donegal.

Affinities

Up until the relatively recently, *Chara*-dominated aquatic communities have received relatively little study in Ireland. Mooney and O'Connell *et al.* (1990) and Wolfe-Murphy *et al.* (1992) have recorded a number of *Chara*-dominated communities from Irish lakes in the last 10 years or so, however a comprehensive study of the vegetation type is urgently needed throughout the island because of the decline in the distribution of certain species which has taken place in the last century. Although *Chara* is a prominent component of a number of NVC aquatic communities, extensive species-poor *Chara* beds do not appear to have been sampled (Rodwell, 1995).

Table AX1

Sample number	849	894	1162	1342	1249	1109	970	1039	937	250	469	637	266	1222	1109
Sub-community	a	a	a	a	a	a	a	a	a	b	b	b	b	b	b
Slope, degrees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Herb height, centimetres	3	1	3	10	4	1	15	40	20	50	1	30	1	35	30
Herb cover (%)	85	95	75	70	30	85	15	70	95	70	65	50	45	60	90
Moss cover (%)	0	0	0	0	0	0	0	0	0	4	0	0	4	0	0
pH (2 numerals no point)	-	-	-	-	-	-	-	-	-	8.9	-	-	-	-	7.5
Bare soil (including sand)	15	5	25	0	0	0	90	0	5	30	0	0	0	0	10
Open water (%)	100	0	100	100	100	100	0	100	0	100	100	95	100	0	100
Chara sp	9	10	9	8	5	8	3			9	6		6	5	
Chara vulgaris								7	10						9
Chara hispidus												7			
Potamogeton natans										4	8	6	4	5	3
Juncus articulatus					3		2		2					2	
Ranunculus seedling/sp							1		3				4		
Eleocharis palustris											2				2
Hippuris vulgaris							4					4			
Scirpus maritimus							3							3	
Scirpus lacustris tabernaemont														6	2
Drepanocladus aduncus										3			4		
Agrostis stolonifera							2								
Anagallis tenella					2										
Myosotis laxa caespitosa									1						
Phragmites australis														3	
Potamogeton filiformis						4		5							
Potamogeton praelongus				3											
Littorella uniflora						2									
Elodea canadensis						2									
Potamogeton perfoliatus						2									
Caltha palustris															2
Carex nigra															3
Carex rostrata															2
Equisetum fluviatile															3
Iris pseudacorus															3
Menyanthes trifoliata															2
Polygonum amphibium															2
Potamogeton pectinatus															2
Number of species	1	1	1	2	3	5	6	2	4	3	3	3	4	6	12

a = Typical sub-community
b = Potamogeton natans sub-community

96907.08

96907.07

AX2

Hippurus vulgaris community

Constant species

Hippurus vulgaris

Floristic composition and structure

The *Hippurus vulgaris* community is a species-poor aquatic vegetation type (mean = 3 species per quadrat) characterised by erect, emergent shoots of *Hippurus*. These shoots cover, on average c. 50% of the quadrats and reach an average height of c. 50 cm. In one of the three samples of the community recorded *Hippurus* is the only species present, while in the other two samples the species is accompanied by other wetland species *Chara* spp., *Apium nodiflorum*, *Apium inundatum*, *Polygonum amphibium*, *Lemna minor* and *Eleocharis palustris*. There is no bryophyte layer present.

Habitat

The *Hippurus vulgaris* community occurs in two distinct habitats, namely wet pools in extensive areas of marsh vegetation or dried out areas close to existing waterbodies.

Distribution within the study area

Although *Hippurus* was recorded as a component of other aquatic and swamp vegetation types, e.g. the *Typha latifolia* community, the *Hippurus* community was recorded from only three sites in the south of the study area namely Dooaghtry, Co. Mayo and Finnish island and Mason island, Co. Galway.

Affinities

An aquatic community characterised by the dominance of *Hippurus* has not been recognised by the NVC. In the NVC system *Hippurus* is a prominent component of a

number of aquatic communities, e.g. the *Potamogeton pectinatus-Myriophyllum spicatum* community (A11) and the *Potamogeton perfoliatus-Myriophyllum alternifolium* community (A13). Mooney and O'Connell (1990) describe a species-rich *Hippurus vulgaris* community from the shores of Lough Corrib, which shares little similarity with the community outlined in this study.

Table AX2

Sample number	1359	1134	1406	
Slope, degrees	0	0	0	
Herb height, centimetres	40	25	12	
Herb cover (%)	85	80	70	
Bare soil (including sand)	20	0	50	
Open water (%)	0	100	0	
Hippuris vulgaris	9	7	5	Constancy V
Chara sp		7		II
Apium nodiflorum		1		II
Eleocharis palustris		3		II
Apium inundatum			5	II
Lemna minor			4	II
Polygonum amphibium			5	II
Number of species	1	4	4	Mean = 3

96925.24

WEED COMMUNITIES

WD1

Weed communities

Constant species

Stellaria media

Species of note

Seceale cereale, Urtica urens.

Floristic composition and structure

The vegetation presented in Table WD1 is a mixture of weed quadrats which are quite difficult to classify. This is particularly so in the case of single examples of a given vegetation type. Further work, and a larger data set, would be required to adequately classify these communities. The quadrats are presented on one table for purposes of comparison and they are sorted into broad community types, based on a co-occurrence of species.

Stellaria media attains a high constancy throughout the recorded data. There are six broad vegetation types presented in Table WD1. These are as follows; (a) a weedy understorey to *Acer pseudoplatanus* woodland (b) a *Poa annua* community, in which *Trifolium repens, Cirsium vulgare, Agrostis stolinifera, Plantago lanceolata* and *Sonchus asper* attain high constancies, (c & d) a *Rumex cripus* and a *Chenopodium album* community, both of which represent recent cultivation of potatoes or rye, (e) an *Urtica dioica*-dominated community and, finally, (f) a very disturbed *Lolium perenne* community, with a very high amount of bare sand.

The average number of species in the recorded data is 11 species per quadrat, and there is a high percentage of bare sand in many of the quadrats, reflecting a history of disturbance.

Habitat

By definition these habitats are indicative of some form of *human disturbance*. The species present indicate a reworking of the thin vegetation cover and the breaking of the turf, resulting in a colonisation of opportunistic species (i.e weeds or ruderal species). A variety of different habitats are encorporated into Table WD1 and represent a variety of landuse activities. Some of the quadrats were sampled in areas where cultivation had been carried out the previous year, while others are indicative of continual disturbance, e.g. proximity to feeding areas etc.

Distribution within the study area

These quadrats were recorded in areas where, for one reason or another, there has been a history of disturbance and/or cultivation. The Mullet Peninsula has a long history of management and cultivation and this site has the highest number of quadrats on Table WD1. Other sites of note in Co. Mayo are Garter Hill and Dooaghtry. In Co. Donegal, weed communities were recorded in the following sites; Lettermacaward/Clooney, Gola Island and Sheskinmore. Further sites include Bunduff/Trawlua, Co. Sligo and Mannin Bay, Co. Galway. The distribution of these communities does not appear to be geographically restricted, rather it is *determined* by the amount of human disturbance in any given site.

Affinities

It is difficult to ascribe precise synonyms to any of these vegetation types, as the data set is quite small. The quadrats are put together in the notional community WD1, until additional data is accummulated.

Table WD1

Sample number	621	869	380	1052	797	1320	798	549	792	914	965	270	704	
Herb cover (%)	90	100	90	90	95	40	100	40	75	60	90	100	30	
Herb height, centimetres	30	100	30	100	25	20	100	30	60	4	30	20	20	
Moss cover (%)	0	0	0	0	0	0	0	0	0	0	0	40	0	
Bare soil (including sand)	50	0	20	30	0	0	0	60	60	50	10	0	90	
Bare rock (%)	0	0	0	0	0	100	0	0	0	0	0	0	0	
Slope, degrees	0	0	10	0	7	20	0	0	0	0	0	10	0	
Aspect, degrees	–	–	330	–	–	160	–	–	–	–	–	230	–	Con
Stellaria media	9	6	3	3	3	2	3	2		4				IV
Acer pseudoplatanus (g)	10													I
Agrostis stolonifera	4	7	6	3							3			III
Poa annua		3	2	5	5	3							2	III
Trifolium repens		3	3	6						2				II
Cirsium vulgare		2	2	3								4		II
Plantago lanceolata				2	2	3		1						II
Sonchus asper		4		2	3	1			2					II
Rumex crispus		5					3	2	2					II
Chenopodium album		2							5	3	8			II
Urtica dioica			2	3								9		II
Cirsium arvense		5	2										6	II
Lolium perenne	2						2			4	4			II
Poa trivialis	5		3	4			6							II
Polygonum aviculare		3			9				2		6			II
Capsella bursa-pastoris						2			5	2				II
Cerastium fontanum	2			1								5		II
Dactylis glomerata	2		2				3							II
Festuca rubra												4	1	II
Holcus lanatus	3											5		II
Potentilla anserina			1				5						1	II
Ranunculus repens			4				2					3		II
Trifolium pratense				4					3					II
Arenaria serpyllifolia								1	2					I
Atriplex patula		3								5				I
Erodium cicutarium								1	2					I
Galium aparine			3				3							I
Leontodon autumnalis						1								I
Plantago major					4								3	I
Bilderdykia convolvulus			6						3					I
Rumex obtusifolius			2	2										I
Senecio jacobaea		2							2					I
Senecio vulgaris									3		2			I
Urtica urens				7				5						I
Solanum tuberosum								3	2					I
Sonchus sp.	3							3						I
Elymus repens									8					I
Agrostis canina												3		I
Ammophila arenaria		3												I
Arctium minus							4							I
Atriplex prostrata		2												I
Coronopus didymus						6								I
Equisetum arvense			1											I
Galeopsis tetrahit							7							I
Galium verum						3								I
Geranium molle												4		I
Hypochoeris radicata				2										I
Lotus corniculatus				2										I
Odontites vernus									2					I
Papaver dubium						2								I
Phleum arenarium										1				I
Poa pratensis										6				I
Polygonum persicaria					3									I
Primula vulgaris	2													I
Sinapis arvensis			4											I
Sisymbrium officinale										3				I
Sonchus arvensis									3					I
Sonchus oleraceus						3								I
Tussilago farfara			5											I
Veronica persica			2											I
Homalothecium lutescens												4		I
Hordeum vulgare			2											I
Taraxacum officinale agg									3					I
Secale cereale										3				I
Number of species	10	14	19	15	7	10	10	8	16	10	5	9	5	11

SCRUB AND WOODLAND COMMUNITIES

W22

Prunus spinosa-Rubus fruticosus scrub

Synonymy

Primula vulgaris-Prunus spinosa Association (R. Tx 1952) Birse 1980

Constant species

Prunus spinosa, Geranium robertianum, Taraxacum officinale

Floristic composition and structure

This scrub community is represented by two samples which differ considerably in terms of both floristic composition and structure. Sample 95 is dominated by low (c. 2 metres) shrubs of *Prunus spinosa* accompanied by a rather species-poor understorey. The most abundant associated species are *Rubus fruticosus, Galium aparine, Geranium robertianum* and *Taraxacum officinale*. There is no bryophyte layer present, presumably due to the shading effects of *Prunus* and *Rubus*. Sample 1255 is also dominated by *Prunus spinosa*, however in this case the wind-shorn canopy is much lower only reaching a height of approximately 20 cm. The associated flora is much more species-rich containing additional vascular species such *as Lotus corniculatus, Achillea millefolium, Leontodon autumnalis* and *Plantago lanceolata*. In contrast to sample 95, 1255 also has a high cover of bryophytes such as *Tortula ruraliformis, Brachythecium albicans* and *Pseudoscleropodium purum*.

Habitat

This underscurb type occurs on reasonably well-drained sandy substrates and is generally surrounded by *Festuca-Galium* grassland.

Distribution

The community was recorded from two sites, Melmore, Co. Donegal and Murvey, Co. Galway, however casual observation suggests that the community is more widely distributed than this study shows, in both coastal and inland habitats.

Affinities

Although the dominance of *Prunus* and *Rubus* in sample 95 firmly places this vegetation in W22, it is rather species-poor (7 species) and, as a result, does not fit well into any of the three recognized sub-communities. Sample 1255 is much more species-rich than sample 95 and also does not fit well with any of the three sub-communities of W22 outlined by the NVC. Clearly much more sampling of *Prunus-Rubus fruticosus* scrub is needed in Ireland generally in order to put these samples in context.

W22

Sample number	95	1255	
Slope, degrees	15	0	
Aspect, degrees	130	0	
Shrub height, metres	2	0.2	
Herb height, centimetres	15	4	
Shrub cover (%)	100	60	
Herb cover (%)	15	70	
Moss cover (%)	0	40	
Bare rock (talus,outcrops,shin	0	0	
Bare soil (including sand)	0	0	
			Constancy
Prunus spinosa	8	8	V
Geranium robertianum	4	3	V
Taraxacum officinale agg	4	1	V
Rubus fruticosus agg	6		III
Galium aparine	4		III
Ranunculus acris	3		III
Agrostis stolonifera	2		III
Tortula ruralis ssp ruraliform		6	III
Lotus corniculatus		5	III
Brachythecium albicans		4	III
Pseudoscleropodium purum		4	III
Achillea millefolium		4	III
Leontodon autumnalis		4	III
Plantago lanceolata		3	III
Poa pratensis		3	III
Primula vulgaris		3	III
Cerastium fontanum		3	III
Trifolium repens		3	III
Veronica chamaedrys		3	III
Viola riviniana		3	III
Rhytidiadelphus loreus		3	III
Rhytidiadelphus squarrosus		3	III
Ranunculus repens		3	III
Bellis perennis		2	III
Carex arenaria		2	III
Cynosurus cristatus		2	III
Dactylis glomerata		2	III
Heracleum sphondylium		2	III
Rumex acetosa		2	III
Thymus praecox arcticus		2	III
Senecio jacobaea		1	III
Number of species	7	27	Mean = 17

W24

Rubus fruticosus-Holcus lanatus underscrub

Constant species

Rubus fruticosus, Holcus lanatus

Floristic composition and structure

This community is represented by two quadrats which differ markedly in their floristics. One sample (643) is dominated by low shrubs/trees of *Acer pseudoplatanus* with occasional specimens of *Pinus pinaster*. The ground layer has a reasonably species-rich, weedy understorey dominated by *Ranunculus repens, Galium aparine, Geranium robertianum* and *Stellaria media*. Other species commonly occurring include *Agrostis stolonifera, Rubus fruticosus, Holcus lanatus* and *Dactylis glomerata*. The bryophyte layer is rather sparse with only *Rhynchostegium murale* and *Eurhynchium praelongum* attaining cover values of above 5%. In the other sample of the community recorded is much more species-poor and has no bryophyte layer present. *Rubus fruticosus* is clearly the dominant shrub, accompanied by smaller amounts of *Lonicera periclymenum, Festuca rubra* and *Arrhenatherum elatius*.

Habitat

This underscrub type occurs on two contrasting habitats. Sample 643 occurs in a reasonably well-drained sandy substrate occupying a clearing in coniferous woodland which is mainly dominated by *Pinus pinaster* while the other sample occurs high up on a shingle beach.

Distribution

The community was recorded from only one site during this study, namely Trawlua, Co. Sligo.

Affinities

Although sample 643 is visually dominated by saplings of *Acer pseudoplatanus*, the understorey has close affinities with the the *Rubus fruticosus-Holcus lanatus* underscrub (W24). The prominence of *Galium aparine*, *Dacylis glomerata* and *Urtica dioica* suggest that the vegetation is probably closer to sub-community b, the *Arrhenatherum elatius-Heracleum sphondylium* sub-community. Sample xxx, on the other hand, is much more species-poor than of the two sub-communities outlined by the NVC. This fact, along with the small number of samples collected during this survey, clearly demonstrates the need for much more sampling of this community to be carried out in Ireland.

Table W24

Sample number	616	643	
Slope, degrees	5	5	
Aspect, degrees	195	100	
Shrub height, metres	1	1.5	
Herb height, centimetres	100	20	
Shrub cover (%)	90	75	
Herb cover (%)	30	85	
Moss cover (%)	0	10	
Bare rock (talus,outcrops,shin	0	0	
Bare soil (including sand)	0	20	
			Constancy
Rubus fruticosus agg.	9	5	V
Holcus lanatus	3	4	V
Lonicera periclymenum	5		III
Festuca rubra	4		III
Arrhenatherum elatius	4		III
Agrostis capillaris	3		III
Pteridium aquilinum	3		III
Acer pseudoplatanus		9	III
Ranunculus repens		7	III
Galium aparine		6	III
Geranium robertianum		6	III
Stellaria media		6	III
Rhynchostegium murale		5	III
Agrostis stolonifera		5	III
Acer pseudoplatanus seedling		4	III
Dactylis glomerata		4	III
Ranunculus acris		4	III
Eurhynchium praelongum		4	III
Pinus pinaster		4	III
Geum urbanum		3	III
Primula vulgaris		3	III
Urtica dioica		3	III
Veronica chamaedrys		3	III
Tortella tortuosa		3	III
Viola riviniana		3	III
Anthriscus sylvestris		2	III
Hyacinthoides nonscripta		2	III
Rumex obtusifolius		2	III
Vicia sepium		2	III
Crepis sp.		2	III
Taraxacum officinale agg.		2	III
Silene dioica		1	III
Number of species	7	27	Mean = 17

WX1

Pinus nigra woodland

Floristic composition and structure

This woodland type is dominated by trees of *Pinus* accompanied by a shrub layer dominated by *Ulex europaeus, Crataegus monogyna* and *Salix cinerea*. The ground layer is relatively species-rich and grassy, being dominated by *Festuca rubra* accompanied by herbs such as *Holcus lanatus, Agrostis stolonifera, Carex flacca, Lotus corniculatus, Viola riviniana* and *Angelica sylvestris*. Although mature, closed-canopy coniferous woodland is normally species-poor, the edges of plantations or open areas can have a varied shrub and ground flora.

Habitat

This plantation wood occurs on a well-drained sandy substrate and grades into *Festuca-Galium* grassland.

Distribution

The community was recorded only from Trawlua, Co. Sligo. Pine plantations on sandy substrates are relatively rare in the north-west of Ireland, but where they exist, they can have an open, species-rich ground-layer.

Affinities

Due to the paucity of phytosociological research into the vegetation of coniferous plantations there is little data with which to compare this vegetation, however broadly similar vegetation has been recorded recently from Lurgabrack dunes, Dunfanaghy, Co. Donegal (Bleasdale and Conaghan, 1996).

WX1

Sample number	644
Slope, degrees	0
Tree height, metres	7
Herb height, centimetres	50
Tree cover (%)	95
Herb cover (%)	95
Moss cover (%)	25
Bare rock (talus,outcrops,shin	0
Bare soil (including sand)	0
Pinus nigra	9
Festuca rubra	8
Ulex europaeus	6
Crataegus monogyna	5
Salix cinerea ssp oleifolia	5
Holcus lanatus	5
Rhytidiadelphus triquetrus	5
Agrostis stolonifera	4
Carex flacca	4
Dactylorhiza fuchsii	3
Lotus corniculatus	3
Angelica sylvestris	3
Anthoxanthum odoratum	3
Carex binervis	3
Viola riviniana	3
Pseudoscleropodium purum	3
Plantago lanceolata	3
Rosa canina agg.	3
Rubus fruticosus agg	3
Hypochoeris radicata	2
Luzula campestris	2
Trifolium repens	2
Acer pseudoplatanus seedling	2
Corylus avellana	2
Centaurea nigra	2
Number of species	25

WX2

Populus tremula woodland

Floristic composition and structure

This woodland type is very distinctive in that it is dominated by trees of *Populus tremula* which attain an average height of approximately 5 metres. The ground layer is relatively species-poor and dominated by a dense carpet of *Hedera helix* accompanied by some *Rubus fruticosus*, *Galium aparine*, *Prunus spinosa* and *Vicia sepium*.

Habitat

The community occurs on gently sloping, shallow, peaty soils and grades into *Calluna-Erica* heath. In the region generally, *Populus* is confined to the tops of maritime cliffs and inaccessible areas of *Calluna-Erica* heath where it spreads by suckering.

Distribution

During this survey, this community was only recorded at Melmore, Co. Donegal. Casual observation suggests that *Populus* is much more common in the coastal areas of north-west Donegal than in other coastal areas of north-western Ireland.

Affinities

Although a tall, closed canopy *Populus* woodland has not been recognized by the NVC, the understorey has strong affinities with the *Hedera-Urtica* sub-community of the *Crataegus monogyna-Hedera helix* scrub (W21a). The presence of these woodland patches in coastal areas of Donegal is noteworthy and it is likely that further research will reveal the presence of many other small areas of woodland dominated by *Populus* in the region.

WX2

Sample number	122
Slope, degrees	30
Tree height, metres	5
Shrub height, metres	2
Herb height, centimetres	30
Tree cover (%)	90
Shrub cover (%)	100
Herb cover (%)	60
Bare rock (talus,outcrops)	0
Bare soil (including sand)	30
Populus tremula	9
Hedera helix	8
Rubus fruticosus agg	5
Galium aparine	4
Prunus spinosa	4
Vicia sepium	4
Brachypodium sylvaticum	3
Conopodium majus	3
Hyacinthoides nonscripta	3
Stellaria holostea	3
Number of species	10

96903.18

WX3

Corylus avellana community

Constant species

Corylus avellana, Filipendula ulmaria, Brachythecium rutabulum, Hedera helix, Geranium robertianum, Sanicula europaea, Mnium hornum.

Floristic composition and structure

This woodland community is dominated by a low (2-5m) canopy of *Corylus avellana*, accompanied in one of the samples by *Salix atrocinerea*. Although the two samples of this community have 7 species in common, they vary greatly in terms of overall floristic composition. There is a relatively species-rich herb layer in which few species have a high cover, however *Hedera helix, Geranium robertianum, Agrostis stolonifera* and *Lonicera periclymenum* are prominent.

Habitat

This vegetation type occurs on damp ground in rocky areas of coastal sites.

Distribution

This woodland community was recorded from only two sites surveyed during the study, Clooney, Co. Donegal and Dooaghtry, Co. Mayo.

Affinities

The vegetation described here is a poor fit for any of the woodland communities dominated by *Corylus*, described by the NVC and this is may be partly due to the small sample number. However, further sampling of these small coastal woodlands may reveal the presence of a distinctive scrubby *Corylus* community. In the NVC system, areas of *Corylus*-dominated woodland occurring on base-poor substrates are generally placed in one of the sub-communities of the *Quercus petraea-Betula pubescens-Oxalis acetosella* woodland (W11).

WX3

Sample number	420	1090	
Shrub height, metres	5	2	
Herb height, centimetres	30	40	
Shrub cover (%)	65	75	
Herb cover (%)	70	85	
Moss cover (%)	10	30	
Bare rock (talus,outcrops,shi	2	5	
Bare soil (including sand)	5	5	
			Constancy
Corylus avellana	7	7	V
Filipendula ulmaria	4	1	V
Brachythecium rutabulum	4	3	V
Hedera helix	4	2	V
Geranium robertianum	1	2	V
Sanicula europaea	3	1	V
Mnium hornum	3	2	V
Salix atrocinerea	7		III
Acer pseudoplatanus	4		III
Rubus fruticosus agg	3		III
Lonicera periclymenum	5		III
Lysimachia nemorum	3		III
Oxalis acetosella	4		III
Hyacinthoides nonscripta	2		III
Fragaria vesca	3		III
Geum urbanum	3		III
Anemone nemorosa	2		III
Ranunculus ficaria	4		III
Primula vulgaris	3		III
Eurhynchium praelongum	4		III
Hypnum cupressiforme	4		III
Isothecium myosuroides	3		III
Rhytidiadelphus loreus	3		III
Thuidium tamariscinum	5		III
Senecio jacobaea	2		III
Solidago virgaurea	1		III
Polytrichum sp	3		III
Tortula sp	3		III
Blechnum spicant	1		III
Carex sylvatica	1		III
Veronica montana	3		III
Viola riviniana	3		III
Conopodium majus	2		III
Ulex europaeus	2		III
Circaea lutetiana	1		III
Hypericum pulchrum	1		III
Agrostis stolonifera		7	III
Angelica sylvestris		1	III
Asplenium trichomanes		1	III
Cerastium fontanum		2	III
Cirsium palustre		3	III
Dryopteris filix-mas		3	III
Glechoma hederacea		3	III
Polypodium australe		1	III
Polystichum setiferum		3	III
Pteridium aquilinum		3	III
Ranunculus repens		3	III
Rosa canina agg		3	III
Rumex acetosa		4	III
Sonchus arvensis		1	III
Urtica dioica		1	III
Veronica chamaedrys		2	III
Eurhynchium striatum		3	III
Marchantia polymorpha		3	III
Peltigera canina		1	III
Rumex seedling/sp		2	III
Plagiochila asplenioides		3	III
Plagiomnium sp		2	III
Number of species	36	29	Mean = 32

MARITIME CLIFF COMMUNITIES

Lack of time did not allow for the discussion of these more marginal communities (in relation to this project). However, complete tables are presented in this section.

Table MC1

Sample number	780	39	1205	1336	1173	1419	
Sub-community	a	a	a	a	a	a	
Slope, degrees	0	90	0	3	0	0	
Aspect, degrees	0	180	0	240	0	0	
Herb height, centimetres	20	20	20	20	30	3	
Herb cover (%)	50	40	40	30	40	30	
Bare rock (talus,outcrops,shin	50	60	60	70	90	90	
Armeria maritima	5	4	5	4	3	3	V
Crithmum maritimum	6	5	4	4	5	6	V
Festuca rubra	4			1	3		III
Plantago maritima		2	6			2	III
Silene vulgaris maritima		4	4		5		III
Glaux maritima				2		3	II
Elymus farctus boreali-atlanti						3	I
Asplenium marinum			2				I
Euphorbia paralias		2					I
Honkenya peploides						3	I
Plantago lanceolata					1		I
Number of species	3	5	5	4	5	6	Mean = 5

a = Typical sub-community

Table MC2

Sample number	113
Slope, degrees	90
Aspect, degrees	20
Herb height, centimetres	6
Herb cover (%)	5
Bare rock (talus,outcrops,shin	95
Armeria maritima	4
Festuca rubra	3
Ligusticum scoticum	3
Senecio vulgaris	1
Ramalina siliquosa	1
Taraxacum officinale agg.	1
Number of species	6

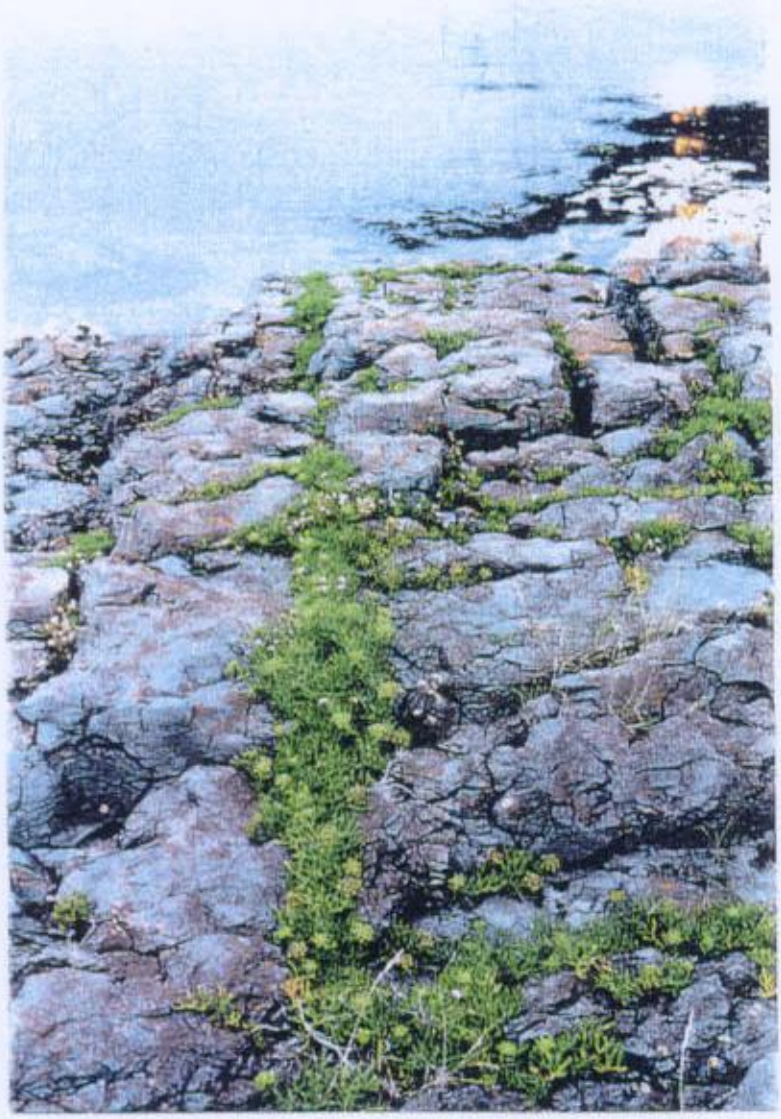


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Table MC3

Sample number	119	488	
Slope, degrees	90	90	
Aspect, degrees	270	20	
Herb height, centimetres	10	35	
Herb cover (%)	10	15	
Moss cover (%)	0	3	
Bare rock (talus,outcrops,shin	95	85	
			Constancy
Rhodiola rosea	3	4	V
Plantago maritima	2	1	V
Ramalina siliquosa	3	1	V
Viola riviniana	3		III
Taraxacum officinale agg.	3		III
Carex demissa	1		III
Plantago coronopus	1		III
Armeria maritima		2	III
Asplenium marinum		1	III
Barbula sp		1	III
Number of species per sample	7	6	Mean = 6.5

96905.05

Table MC6

Sample number	1450
Slope, degrees	0
Herb height, centimetres	40
Herb cover (%)	30
Bare rock (talus,outcrops,shin	100
Beta vulgaris maritima	5
Armeria maritima	4
Atriplex prostrata	3
Elymus farctus boreali-atlanti	3
Plantago coronopus	1
Rumex crispus	1
Number of species	6

96905.09

Table MC8

Sample number	1	140	126	781	
Sub-community	a				
Slope, degrees	2	0	20	0	
Aspect, degrees	360	0	15	0	
Herb height, centimetres	3	5	5	20	
Herb cover (%)	90	70	100	85	
Moss cover (%)	10	0	5	5	
pH (2 numerals no point)	6.4	-	-	-	
Bare rock (talus,outcrops,shin	5	30	0	10	
Bare soil (including sand)	0	0	0	5	
					Constancy
Armeria maritima	5	8	4	4	V
Festuca rubra	8	8	8	7	V
Plantago coronopus	2	2	3		IV
Plantago maritima		6	5	5	IV
Cerastium diffusum	4	3			III
Lotus corniculatus			4	4	III
Trifolium repens			4	3	III
Barbula sp	2		3		III
Taraxacum officinale agg	3			1	III
Leontodon autumnalis	6				II
Cochlearia officinalis	5				II
Sagina procumbens	3				II
Matricaria maritima	3				II
Eurhynchium praelongum	3				II
Cladonia squamules/sp	1				II
Galium verum		3			II
Poa pratensis		5			II
Silene vulgaris maritima		2			II
Peltigera canina		1			II
Plantago lanceolata			5		II
Hydrocotyle vulgaris			4		II
Koeleria macrantha			4		II
Anagallis tenella			3		II
Bellis perennis			4		II
Carex demissa			3		II
Carex nigra			3		II
Carex panicea			5		II
Cynosurus cristatus			1		II
Festuca ovina			2		II
Succisa pratensis			2		II
Carex distans				6	II
Bryum sp				5	II
Agrostis stolonifera				3	II
Number of species per sample	12	9	18	9	Mean = 12

a = typical sub-community

Table MC9

Sample number	2	3	41	96	
Slope, degrees	25	2	5	4	
Aspect, degrees	360	270	180	60	
Herb height, centimetres	10	4	20	5	
Shrub cover (%)	0	0	0	70	
Herb cover (%)	100	95	100	70	
Moss cover (%)	5	1	5	60	
pH (2 numerals no point)	5.9	-	-	-	
Bare rock (talus,outcrops,shin	0	0	5	0	
Bare soil (including sand)	0	1	0	0	
					Constancy
Festuca rubra	7	6	7	6	V
Holcus lanatus	8	5	3	3	V
Poa pratensis	2	3	4	3	V
Carex nigra		5	1	5	IV
Plantago maritima		4	3	3	IV
Trifolium repens	3		5	4	IV
Leontodon autumnalis	5	4			III
Eurhynchium praelongum	1	2			III
Armeria maritima		4	2		III
Bellis perennis			3	2	III
Carex flacca			3	4	III
Lotus corniculatus			6	5	III
Luzula campestris			2	4	III
Plantago lanceolata			4	3	III
Ranunculus bulbosus			3	3	III
Senecio jacobaea			1	2	III
Potentilla anserina	6				II
Cerastium diffusum	2				II
Rumex acetosa	4				II
Cochlearia officinalis	2				II
Ophioglossum vulgatum		4			II
Agrostis stolonifera		5			II
Koeleria macrantha			5		II
Homalothecium lutescens			3		II
Achillea millefolium			3		II
Poa annua			2		II
Daucus carota			2		II
Salix repens agg				8	II
Rhytidiadelphus triquetrus				8	II
Agrostis capillaris				3	II
Carex arenaria				2	II
Carex pilulifera				3	II
Cynosurus cristatus				2	II
Euphrasia officinalis agg				3	II
Galium verum				3	II
Pilosella officinarum agg				3	II
Polygala vulgaris				2	II
Prunella vulgaris				2	II
Selaginella selaginoides				2	II
Thymus praecox arcticus				3	II
Trifolium pratense				3	II
Vicia cracca				2	II
Calliergon cuspidatum				2	II
Brachythecium albicans				4	II
Ctenidium molluscum				2	II
Ditrichum flexicaule				1	II
Rhytidiadelphus squarrosus				3	II
Number of species per sample	10	10	19	33	Mean = 18

TABLE MC10

Sample number	1441	1246	183	283	322	139	241	457	
Sub-community				a	a	a	a	a	
Slope, degrees	0	10	0	0	10	10	5	10	
Aspect, degrees	0	250	0	0	20	195	300	210	
Herb height, centimetres	2	3	10	20	5	3	2	5	
Shrub cover (%)	0	0	0	0	20	0	0	0	
Herb cover (%)	65	70	50	60	80	70	40	85	
Moss cover (%)	0	0	20	0	0	0	60	10	
Bare rock (talus,outcrops,shin	0	0	40	40	0	30	40	10	
Bare soil (including sand)	35	30	0	0	0	0	10	10	
									Constancy
Plantago coronopus	7	4	2	2	4	4	1	1	V
Festuca rubra		7	6	4	5	7	5	4	V
Plantago lanceolata		3	2	3	4	2	2	2	V
Lotus corniculatus			4	4	4	4	1	5	IV
Plantago maritima			3	4	5	5	2	3	IV
Armeria maritima				4	4	7	2	3	IV
Carex flacca			5		4	2	4	5	IV
Thymus praecox arcticus			6		6	7	4	4	IV
Bellis perennis					3	3	2	3	III
Prunella vulgaris					4	3	2	3	III
Centaurium erythraea			1				1	2	II
Euphrasia officinalis agg					3	3		3	II
Koeleria macrantha			4			7	4		II
Polygala vulgaris			3			3		2	II
Anthyllis vulneraria			4					4	II
Carex demissa					6	3			II
Carex panicea					7	4			II
Daucus carota				2				3	II
Hypochoeris radicata						2		4	II
Trifolium repens				3		4			II
Agrostis stolonifera	6								I
Sagina nodosa	2								I
Achillea millefolium		3							I
Erodium cicutarium		3							I
Botrychium lunaria			3						I
Luzula campestris			2						I
Carex pulicaris			4						I
Barbula sp			6						I
Carex arenaria				4					I
Catapodium rigidum				2					I
Centaurea nigra				1					I
Cerastium diffusum				2					I
Potentilla anserina				3					I
Silene vulgaris maritima				2					I
Trifolium pratense				3					I
Taraxacum officinale agg				2					I
Anagallis tenella					3				I
Potentilla erecta					2				I
Salix repens agg					3				I
Carex nigra						3			I
Collema sp							8		I
Campanula rotundifolia							3		I
Cerastium glomeratum							2		I
Ranunculus bulbosus							2		I
Sedum acre							1		I
Succisa pratensis							4		I
Bryum capillare							3		I

Ditrichum flexicaule					4			I	
Agrostis capillaris						3		I	
Coeloglossum viride						3		I	
Holcus lanatus						3		I	
Linum catharticum						4		I	
Senecio jacobaea						2		I	
Danthonia decumbens						1		I	
Viola riviniana						3		I	
Brachythecium albicans						3		I	
Number of species per sample	3	5	15	16	16	18	20	24	Mean = 15

Table MCX1

Sample number	132	278	
Slope, degrees	90	90	
Aspect, degrees	120	100	
Herb height, centimetres	40	30	
Shrub cover (%)	30	40	
Herb cover (%)	30	40	
Bare rock (talus,outcrops,shin	20	25	
			Constancy
Festuca rubra	4	5	V
Hedera helix	5	4	V
Lonicera periclymenum	5	4	V
Plantago lanceolata	3	2	V
Dryopteris carthusiana x dilit	4		III
Angelica sylvestris	3		III
Asplenium marinum	2		III
Dactylis glomerata	3		III
Ramalina siliquosa	3		III
Primula vulgaris	2		III
Rosa pimpinellifolia	3		III
Hypochoeris radicata	2		III
Centaurea nigra	3		III
Populus tremula		7	III
Armeria maritima		4	III
Cochleana officinalis		3	III
Poa pratensis		3	III
Silene vulgaris maritima		3	III
Number of species	13	9	Mean = 11

SALTMARSH COMMUNITIES

Lack of time did not allow for the discussion of these more marginal communities (in relation to this project). However, complete tables are presented in this section.

Table SM10

Sample number	236
Slope, degrees	0
Herb height, centimetres	2
Herb cover (%)	85
Bare soil (including sand)	15
Salicornia europaea	7
Puccinellia maritima	5
Turf fucoids	5
Armeria maritima	3
Glaux maritima	3
Number of species	5

Table SM13

Sample number	1065	741	1110	1401	191	190	235	431	
Sub-community		b	b	b	b	d	d	d	
Slope, degrees	0	4	0	0	0	0	0	0	
Aspect, degrees	0	220	0	0	0	0	0	0	
Herb height, centimetres	4	8	2	3	10	3	1	10	
Herb cover (%)	75	80	90	90	80	98	90	95	
Moss cover (%)	0	0	40	0	0	0	0	0	
pH (2 numerals no point)	8.0								
Bare soil (including sand)	40	30	5	10	20	2	15	5	
									Constancy
Glaux maritima	8	4	5	7	4	3	5	3	V
Puccinellia maritima	4	9	5	5	9	4	5	3	V
Plantago maritima	4		6	5	3	7	7	8	V
Carex distans		3	6	3					II
Juncus gerardi	4		5					4	II
Triglochin maritimum		3		7				3	II
Armeria maritima					2	7	6	3	III
Aster tripolium					3		3	2	II
Turf fucoids						4	6	3	II
Agrostis stolonifera		3		4					II
Leontodon autumnalis				2					I
Plantago coronopus			5						I
Suaeda maritima		2							I
Triglochin palustre	1								I
Barbula sp			5						I
Algal mat						3			I
Number of species	5	6	7	7	5	6	6	8	Mean = 6

Table SM16

Relative number	187	394	192	42	189	195	316	201	317	318	327	439	544	747	1071	1072	1074	1079	1080	1149	1150	1215	725	1218	
Slope, degrees	0	0	0	5	0	0	0	0	0	0	10	1	0	0	0	0	0	0	0	0	0	0	3	0	
Aspect, degrees	0	0	0	260	0	0	0		0	0	280	160	0	0	0	0	0	0	0	0	0	0	240	0	
Herb height, centimetres	25	5	20	7	2	2	2	5	4	35	20	8	15	4	2	1	2	6	8	2	3	1	35	25	
Herb cover (%)	98	45	98	90	95	90	90	70	93	98	35	100	90	95	90	85	100	70	98	95	95	95	80	95	
Moss cover (%)	0	0	4	0	0	0	0	0	0	0	0	0	25	40	10	5	0	0	0	0	5	0	25	0	
pH (2 numerals no point)					6 1				7 7					8	6 9	7 8				5 8	6 7		7 8		
Bare rock (talus,outcrops,ston	0	20	0	0	0	0	0	0	0	0	80	0	0	0	0	0	0	0	0	3	0	0	5	0	
Bare soil (including sand)	2	35	3	10	5	5	10	30	7	3	0	0	10	0	15	10	0	50	5	2	2	5	10	5	
																									Constancy
Glaux maritima	4	5	2	4	4	4	5	5	4	5	3	4	5	6	5	5	3	5	5		2	4	4	5	V
Plantago maritima	5		1		7	3	7	5	3	3		4	3		6	7			5	8	8	8		2	IV
Festuca rubra	5		6	4		7	4	5	7	3		8	3				9		7	4	6		4	6	IV
Agrostis stolonifera	2		4			6	2					2	5	8	4	3		7	4	3	3		4	4	IV
Juncus gerardi	6	5	3			3	3			6	3	5	7	5				3	4					6	III
Plantago coronopus						2	3		1				4	2	5	5	4		3	5	3				III
Leontodon autumnalis			2			1	4						2	3	4	2			5	3			2		III
Armeria maritima				6	7			5	7	3		3										2		3	II
Carex distans						2	2					3	3			3				4	4			4	II
Cochlearia officinalis	3		3	2				3	3	3	4	2													II
Triglochin maritimum	2									2				3				3	3			2		4	II
Juncus articulatus														4	2			2	3		3		5		II
Carex flacca							3						4		5				4		5				II
Eleocharis quinqueflora							5								5	3		5						4	II
Samolus valerandi													3		2	2		3							I
Trifolium repens														4	4				5		3				I
Aster tripolium									2	3												6			I
Carex nigra			4			4															4				I
Hypochoeris radicata				1																1			3		I
Sagina procumbens			1														1				1				I
Matricaria maritima				3							5												3		I
Bartsia sp													5			4							5		I
Agrostis capillaris																3	3								I
Carex arenaria														3									3		I
Poa pratensis			6														4								I
Potentilla anserina											5				2										I
Puccinellia maritima												1				3									I
Triglochin palustre														4									5		I
Calliergon cuspidatum														7	4										I
Turf fucoids					3			3																2	I
Elymus repens																				3					I
Anagallis tenella																							2		I
Angelica sylvestris																							1		I
Atriplex prostrata																									I
Atriplex laciniata				3																			3		I
Daucus carota													5												I
Eleocharis palustris																			1						I
Eriophorum angustifolium																				2					I
Euphrasia officinalis agg															2										I
Hydrocotyle vulgaris													2												I
Juncus bufonius																									I
Juncus bulbosus							1														3				I
Lotus corniculatus																				3					I
Plantago lanceolata																							4		I
Poa trivialis																			2						I
Sagina nodosa																									I
Schoenus nigricans							2											2							I
Sorpus lacustris rabemaemoni																							2		I
Senecio jacobaea																							2		I
Sonchus oleraceus																									I
Trifolium pratense				3																					I
Brachythecium rutabulum				3																		4			I
Heterocladium heteroplenum																									I
Xanthoria parietina													1												I
Bryum sp													4												I
Taraxacum officinale agg																							1		I
Leontodon sp		1																							I
Number of species per sample	8	2	12	7	4	11	10	6	7	8	5	10	14	11	13	11	6	8	13	10	13	5	17	10	Mean = 9

96500.30

96500.28

Table SM18

Sample number	186	188	194	430	440	1111	
Sub-community		a	a	a	a	a	
Slope, degrees	0	0	0	0	0	0	
Herb height, centimetres	45	35	40	50	30	50	
Herb cover (%)	100	98	95	100	95	95	
Moss cover (%)	3	10	0	0	0	0	
Bare soil (including sand)	0	2	30	2	5	10	
							Constancy
Juncus maritimus	7	7	8	8	6	8	V
Glaux maritima		3	3	3	5	5	V
Plantago maritima		3	2	5	3	5	V
Agrostis stolonifera	3			2	3	4	IV
Festuca rubra	3	7			5	5	IV
Cochlearia officinalis		3	3		3		III
Schoenus nigricans	2	2					II
Armeria maritima			4	4			II
Aster tripolium			3	2			II
Leontodon autumnalis					2	6	II
Molinia caerulea	7						I
Calliergon cuspidatum	2						I
Eurhynchium praelongum	2						I
Rhytidiadelphus squarrosus	3						I
Brachythecium populeum		4					I
Leontodon sp		1					I
Triglochin maritimum			3				I
Spergularia rupicola			1				I
Carex distans					3		I
Juncus gerardi					3		I
Trifolium repens					3		I
Plantago coronopus						4	I
Puccinellia maritima						5	I
Number of species	8	8	8	6	10	8	Mean = 8

Table SM19

Sample number	237	558	
Slope, degrees	3	5	
Aspect, degrees	160	190	
Herb height, centimetres	10	30	
Herb cover (%)	60	100	
Moss cover (%)	60	0	
Bare soil (including sand)	15	0	
			Constancy
Blysmus rufus	8	9	V
Plantago maritima	3	3	V
Glaux maritima	3	2	V
Carex distans	3		III
Salicornia europaea	2		III
Juncus gerardi		3	III
Number of species	5	4	Mean = 4.5

96501.32

Table SM20

Sample number	1076
Slope, degrees	0
Herb height, centimetres	15
Herb cover (%)	70
Open water (%)	400
Eleocharis uniglumis	6
Algal mat	7
Triglochin palustre	4
Agrostis stolonifera	2
Number of species	4

96906.37

Appendix - Sample numbers for constancy tables

Sample numbers for sand-dune constancy tables

SD4a sample numbers
15 383 547 608 728 739 742 770 772 870 916 958 1157 1263
1331 1364 1396

SD4b sample numbers
18 321 726 930 1025 1031 1166 1298 1373 1398 1432 1443 1449 1452

SD6a sample numbers
38 427 462 568 569 598 605 667 673 693 723 732 773 814
846 864 925 926 957 959 1017 1026 1060 1061 1115 1233 1281 1305
1436 1437 1453

SD6c sample numbers
103 265

SD6d sample numbers
17 102 157 159 221 224 233 273 342 367 438 465 570 581
601 703 707 740 879 915 947 997 1096 1235 1296 1333

SD6e sample numbers
348 506 585 599 602 603 695 1116 1414 1415

SD6g sample numbers
775

SD7a sample numbers
13 76 77 81 98 100 104 158 219 222 229 249 275 363
381 382 425 464 466 467 546 600 679 734 771 812 867 912
946 994 1421 1442 1451

SD7d sample numbers
463 471 1014 1117 1431

SD8a sample numbers
21 29 30 32 34 52 53 65 72 82 107 147 148 154
171 173 200 215 216 220 267 269 280 281 288 308 343 344
360 384 390 479 485 497 504 507 513 537 541 550 572 586
596 597 609 611 618 678 689 690 702 708 803 805 806 807
817 818 819 822 823 840 854 872 881 911 913 920 926 927
933 936 938 951 961 1015 1016 1020 1021 1067 1099 1114 1124 1212
1223 1232 1250 1251 1252 1321 1384 1394 1409 1411 1420 1422 1427 1429
1444 1445 1448

SD8b sample numbers
37 40 109 204 205 207 210 212 217 218 228 230 232 240
243 245 271 284 289 293 294 297 298 311 316 358 386 565
620 687 736 790 935 1010 1013 1044 1050 1051 1224 1300 1323 1325
1387

SD8c sample numbers
70 75 144 145 181 203 206 223 225 234 244 268 272 282
296 319 364 385 424 472 525 571 604 606 617 619 677 692
696 706 709 714 717 721 722 732 735 743 744 745 764 769
776 778 783 784 785 802 820 821 839 847 861 868 877 910
924 950 954 955 977 978 979 985 992 1022 1028 1032 1056 1058
1064 1068 1147 1155 1161 1167 1169 1179 1234 1236 1237 1238 1244 1253
1262 1264 1267 1274 1276 1299 1301 1315 1319 1327 1334 1355 1356 1390
1397 1408 1410 1423 1446 1447 1454

SD8d sample numbers
12 33 80 83 88 101 146 167 170 227 315 444 575 731
808 809 810 828 835 855 875 884 902 906 909 942 944 964

SD8e sample numbers
66 155 162 163 172 197 347 350 391 437 443 446 458 503
511 512 538 543 548 562 578 580 584 607 661 683 685 688
691 715 716 724 746 774 811 827 882 892 939 975 981 984
987 990 991 1037 1047 1168 1177 1221 1241 1247 1328 1338 1349 1357
1363

SD8f sample numbers
114 451 502 1119

SD8g sample numbers
19 73 79 84 85 90 111 116 117 121 149 156 169 176
180 202 209 213 239 242 279 299 309 338 349 361 366 389
423 447 452 501 625 675 680 761 779 782 794 813 824 825
826 833 834 838 886 890 922 941 1007 1102 1120 1152 1170 1172
1176 1258 1351 1383

SD8h sample numbers
339 357 566 592 595 622 796 831 862 901 967 1156 1178

SD8i sample numbers
16 105 359 727 865 871 876 880 883 885 887 995 1062 1158
1159 1277 1278 1279 1283 1330 1386 1434 1435 1438

Sample numbers for Swamp constancy tables

S19a sample numbers
35 254 665 1000 1008 1095 1129 1137 1216 1280 1290 1341 1350

S19c sample numbers
251 368 402 31 633 658 754 816 841 973 1027 1038 1138

S19d sample numbers
166 247 483 559 999 1163 1207

S23a sample numbers
50 141 151 612 694 699 712 713 791 843 923 931 932 960
1024 1035 1053 1059 1160 1174 1243 1256 1297 1303 1388 1428

S23b sample numbers
28 86 106 150 152 161 310 567 593 594 786 962 1018

S23c sample numbers
142 487 499 697 700 749 750 753 757 844 982 989 1041 1048
1122 1128 1135 1136 1171 1175 1183 1226 1257 1266 1289 1352

SX3a sample numbers
45 47 48 51 74 89 99 112 164 246 252 257 258 286
307 320 325 332 346 353 378 400 403 450 470 475 476 484
561 564 573 577 579 582 613 800 908 993 1033 1057 1112 1130
1182 1187 1193 1213 1311 1362 1430 1433

SX3b sample numbers
36 67 68 97 108 153 168 175 351 453 481 509 627 649
650 758 767 768 777 787 789 795 804 848 853 907 940 986
1081 1125 1284 988

SX3c sample numbers
8 23 303 304 333 354 409 412 419 421 441 474 478 486
508 523 535 555 635 638 663 705 766 788 842 852 896 898
1005 1034 1054 1084 1085 1086 1087 1093 1096 1103 1206 1217 1240 1248
1269 1275 1368

96913.12

AQUATIC COMMUNITIES

A7

Nymphaea alba community

Synonymy

Nymphaeetum albae Oberdorfer and Mintarb. 1967

Constant species

Nymphaea alba

Floristic composition and structure

This distinctive aquatic community is dominated by the floating leaves of white water-lily, *Nymphaea alba* with the cover of the species varying between 35 and 70%. The community composition ranges from single-species stands to examples in which the emergents *Phragmites australis* and *Menyanthes trifoliata* are prominent. Other species which occur sparsely include *Equisetum fluviatile*, *Potamogeton natans*, *Baldelia ranunculoides* and *Scirpus lacustris* ssp *tabernaemontani*.

Habitat

This community is restricted to larger water-bodies which have a peaty bottom. Water depth usually exceeds 2 metres, however in some cases the community grows floating on the surface of a loose matrix of muddy peat and water. When the community occurs there is generally a transition to *Phragmites australis* swamp and sometimes it is difficult to ascertain the boundaries between the two communities. Although pH determinations were not carried out on the associated surface waters it is likely that the lakes are relatively base-poor.

Distribution within the study area

Although this community was recorded infrequently, it is widely distributed in the study area being recorded from 2 sites in Co. Donegal (Melmore and Sheskinmore), 1 site in Co. Mayo (Dooaghtry) and 2 sites in Co. Galway (Omey and Dogs bay).

Affinities

The vegetation described in this study is synonymous with the *Nymphaea alba* community described by the NVC. The species-poor nature of the samples collected suggests that they correspond to A7a (the species-poor sub-community). Species-poor *Nymphaea alba* communities are relatively common in the north and west of Ireland and vegetation very similar to the community recorded in this study have been previously recorded in Ireland by Mooney and O'Connell (1990) and Wolfe-Murphy *et al.* (1992).

Table A7

Sample number	123	551	1144	1192	1198	
Sub-community	a	a	a	a	a	
Slope, degrees	0	0	0	0	0	
Herb height, centimetres	2	50	30	60	2	
Herb cover (%)	80	60	80	40	40	
Bare soil (including sand)	0	0	0	0	0	
Open water (%)	100	100	100	100	95	
Nymphaea alba	6	7	8	6	7	Constancy V
Phragmites australis			4		2	II
Baldellia ranunculoides		2				I
Equisetum fluviatile		5				I
Menyanthes trifoliata			4			I
Potamogeton natans				3		I
Potentilla palustris		1				I
Scirpus lacustris tabernaemont					3	I
Ranunculus seedling/sp				3		I
Number of species	1	4	3	3	3	Mean = 3

a = species-poor sub-community

96916.25

96504.10