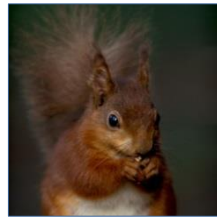


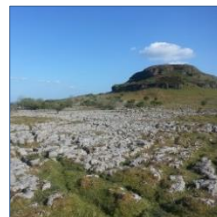
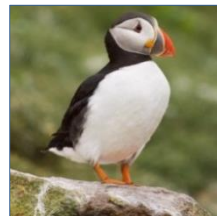
NATIONAL PARKS AND WILDLIFE SERVICE



THE IRISH JUNIPER MONITORING SURVEY 2017 APPENDICES



F.H. O'Neill and J.R. Martin



An Roinn Cultúir,
Oidhreachta agus Gaeltachta
Department of Culture,
Heritage and the Gaeltacht

Front cover, small photographs from top row:

Coastal heath, Howth Head, Co Dublin, Maurice Eakin; **Red Squirrel** *Sciurus vulgaris*, Eddie Dunne, NPWS Image Library; **Marsh Fritillary** *Euphydryas aurinia*, Brian Nelson; **Puffin** *Fratercula arctica*, Mike Brown, NPWS Image Library; **Long Range and Upper Lake**, Killarney National Park, NPWS Image Library; **Limestone pavement**, Bricklieve Mountains, Co Sligo, Andy Bleasdale; **Meadow Saffron** *Colchicum autumnale*, Lorcan Scott; **Barn Owl** *Tyto alba*, Mike Brown, NPWS Image Library; **A deep water fly trap anemone** *Phelliactis* sp., Yvonne Leahy; **Violet Crystalwort** *Riccia huebeneriana*, Robert Thompson

Main photograph:

Juniperus communis at Dawros Head, Co. Donegal. Photo by J. Martin.



The Irish Juniper Monitoring Survey 2017 - Appendices

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Appendix 1. Site summary data sheet

This data sheet was used as a front sheet for all site packs. Some information, such as the site number, name and grid reference, was printed on the sheet prior to survey. Information from the baseline survey (Cooper et al., 2012), such as the area of the site, number of shrubs counted and number of monitoring plots recorded, was also included. The area of the site estimated from the 2015 NPWS ranger survey was indicated separately on the form. The “suggested number of plots” field was determined based on the area-to-plots scale shown in Table 2 of the main report and used the baseline survey’s site area as the basis for the determination. The actual number of plots recorded by surveyors may have been greater or less than this number, depending on the actual area of the habitat mapped or estimated on the day.

The Survey results and Survey notes sections, including positive and negative activities occurring on site, were filled out by surveyors after the survey had been completed.

Site no: [Auto-filled before survey]	Disco. map: [Auto-filled before survey]
Site name: [Auto-filled before survey]	Area (Cooper): [Auto-filled before survey] Area (NPWS): [Auto-filled before survey] No. of Plots: [Auto-filled before survey] Baseline: [Auto-filled before survey] Suggested: [Auto-filled before survey]
Grid ref: [Auto-filled before survey]	Population (Cooper): [Auto-filled before survey]
Hab. group: [Auto-filled before survey]	Population (NPWS): [Auto-filled before survey]
SAC: [Auto-filled before survey]	Ranger: [Auto-filled before survey]
Notes: [Auto-filled before survey]	

Survey results: Site-level criteria

Area (ha): _____	Est. no. shrubs: _____	No. stops/relevés: _____	%dead: _____
%coned: _____	Est. %cov Juniper: _____	%seedlings: _____	%prostrate: _____

Survey notes:

Site description or changes since baseline:

Impact code / description e.g. A04.01 intensive grazing	Location inside / outside pop. extent	Influence (+/-/0)	Intensity (H/M/L)	% pop. extent affected (<1%; 1-25%; 26-50%; 51-75%; 76-99%; 100%)

Comments on condition/management:

Other remarks:

Data entry/checking:

- GPS points downloaded: INITIALS _____ DATE _____
- Turboveg checked: INITIALS _____ DATE _____
- Photos labelled correctly: INITIALS _____ DATE _____
- Data checked & complete: INITIALS _____ DATE _____

Appendix 2. Turboveg header data recorded at each monitoring stop

The following header information was recorded at each monitoring stop in the vegetation database recording program Turboveg (Compact Edition for use on hand-held devices; Alterra, The Netherlands):

1. COVER_SCALE: Percentage (%) was always selected.
2. DATE: Date plot was recorded
3. SITE_NO: Site number, e.g. CE21, CK04, etc.
4. PLOT_NO: Stop or relevé number. 1, 2, etc.
5. OTHER_ANNX: Other Annex I habitats besides 5130 Juniper formations (whose presence is assumed) which are present and associated with the 5130 habitat, e.g. 6210, 8240.
6. FOSSITT: Fossitt code of the habitat in which stop is recorded, e.g. WS1.
7. SURVEYORS: Name of ecologist(s) recording the stop.
8. GRID_REF: Grid reference of monitoring stop in Irish Grid.
9. TOPOGRAPHY: Description of topography of where stop is recorded, e.g. mid slope, flat, summit.
10. ASPECT: Cardinal or ordinal compass point (N, NW, etc.) of stop's aspect if on a slope, otherwise "None".
11. SLOPE: Slope in degrees, determined by clinometer, if on a slope, otherwise 0.
12. SWARD_Ht1-4: Height in cm of grasses/broadleaf herbs from four points in plot, one from each quadrant.
13. BARE_SOIL: Percent cover of bare soil in the plot.
14. BARE_ROCK: Percent cover of bare rock in the plot.
15. BRYO_COVER: Percent cover of bryophytes (lichens not included) in the plot.
16. GRAM_COVER: Percent cover of graminoids (grasses, sedges, rushes) in the plot.
17. FORB_COVER: Percent cover of forbs in the plot.
18. JUNIPR_COV: Percent cover of Juniper in the plot.
19. JUNIP_TYPE: Type of Juniper present. Possible values were Prostrate, Spreading, Upright.
20. NO_BRK_STR: Number of Juniper plants rooted in the plot showing evidence of bark stripping due to grazers/browsers.
21. PC_BRWN_JN: Percent of the plot covered by Juniper that was browning due to ill health (entirely dead plants were not included in this score). This field recorded only browning that was due to ill health or stress, and not the brownish-green colour sometimes seen on healthy shoots. In the data analysis, this value was later converted to the percentage cover of Juniper that was browning using the value in field 18, JUNIPR_COV, as follows:
22. $(\text{JUNIPR_COV} \times \text{PC_BRWN_JN})/100$.
23. NEG_SP_COV: Percent cover of negative species. These were: any non-native species (e.g. *Cotoneaster integrifolius*, *Rhododendron ponticum*) and the following species indicative of agricultural improvement: *Lolium perenne*, *Trifolium repens*, *Cirsium arvense* and *Cirsium vulgare*.
24. NO_CONED: Number of females with berries; only individuals rooted in the plot were counted.

25. NO_UNCONED: Number of juvenile/adult individuals without berries; only individuals rooted in the plot were counted.
26. NO_SEEDLNG: Number of Juniper seedlings in the plot.
27. NO_DEAD: Number of fully dead Juniper bushes rooted in the plot.
28. BRWSE_EVID: Value was "Y" if there was evidence of browsing on the ends of Juniper branches, and "Y old" used to indicate if browsing was thought to be from last year.
29. JN_HT_RNGE: Minimum and maximum heights (in cm) of Juniper shrubs rooted in the plot, e.g. 20-100cm.
30. VASC_COVER: Percent cover of vascular plants in the plot.
31. REL_OR_MS: Whether full relevé or monitoring data only recorded.
32. REMARKS: Free text field for recording additional information about the plot.

Appendix 3. Individual site reports

Individual site reports were compiled from the following:

- the summary paragraphs written by ecologists after each survey,
- the impacts recorded during the survey, and
- the results of the different components of the habitat assessment.

Site CE21 Rinecaha, Co. Clare

001926 East Burren Complex SAC

Summary site data:

Location (Irish Grid):	137152_193317	Discovery map:	52
Area (ha):	0.352	No. of formations:	2
Juniper population:	50-100	No. of monitoring stops (2017):	2
Percent berried females:	29	Percent seedlings:	<1%
Percent dead shrubs:	0	Juniper morphology:	50% prostrate, 50% spreading

Assessment data:

Parameter	Criterion	Result	Assessment
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	6	Favourable
	%_berried	Pass	
	%_seedlings	Pass	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Brower damage	Fail	
	Negative species	Pass	
Future prospects:			Favourable
OVERALL ASSESSMENT:			FAVOURABLE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected
A04.02.01	Non-intensive cattle grazing	Positive	Low	100

Site description:

This site is located on the shore of Muckanagh Lough. Juniper formations were present on calcareous grassland (6210) and limestone pavement. The main species in the calcareous grassland were *Sesleria caerulea* and *Hylocomium splendens* (relevé 1). The main species in the area of limestone were *Sesleria caerulea*, *Festuca ovina* and *Hypnum lacunosum* (relevé 2). Two formations of c.50 plants were mapped.

There was evidence of cattle grazing. The owner is part of the GLAS Scheme and Burren Programme.

Juniper formations were absent from the adjacent limestone pavement, although isolated scattered plants were observed. A population of >100 *Potentilla fruticosa* plants was present. The island adjacent to the site is an important nesting colony for Cormorant and Little Egret. Brent Geese and several gulls were observed in the area.

Management recommendations:

Maintain current management regime.

Site CK04 Cleanderry track, Co. Cork

001043 Cleanderry Wood SAC

Summary site data:

Location (Irish Grid):	66342_55651	Discovery map:	84
Area (ha):	0.068	No. of formations:	1
Juniper population:	50-100	No. of monitoring stops (2017):	1
Percent berried females:	54	Percent seedlings:	0
Percent dead shrubs:	0	Juniper morphology:	Spreading

Assessment data:

Parameter	Criterion	Result	Assessment
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	6	Favourable
	%_berried	Pass	
	%_seedlings	Fail	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Pass	
	Negative species	Pass	
Future prospects:			Favourable
OVERALL ASSESSMENT:			FAVOURABLE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected
A04.02.03	Non-intensive horse grazing	Positive	Medium	100
G05.09	Fences, fencing	Neutral	Low	100
J01.01	Burning down	Negative	High	1-25
J03.02	Anthropogenic reduction of habitat connectivity	Negative	Low	100

Site description:

The area appears unchanged since the baseline survey, with Juniper plants mostly found along a rocky ridge/stone wall that runs southwest to northeast on the north side of the road. Only around ten scattered plants were found on the south side of the road, including where the relevé was recorded for the baseline survey, but these were too far away to be included with the formation so the 2017 monitoring stop was recorded in the formation north of the road. The area was horse-grazed but no damage to the Juniper was noted. The site appears to have been burnt in the last 2-3 years, with charring of plants and peat still evident. *Ulex gallii* is regenerating freely and many young plants were observed. There may be a threat to Juniper from *U. gallii* competition in the next few years as they seem to be occupying the same niche. CK10 only consists of a few bushes and is too far away to be merged with CK04.

Management recommendations:

Maintain current management regime.

Site CK07 Cod's Head, Allihies, Co. Cork

002158 Kenmare River SAC

Summary site data:

Location (Irish Grid):	55350_47312	Discovery map:	84
Area (ha):	4.274	No. of formations:	1
Juniper population:	3,001-10,000	No. of monitoring stops (2017):	4
Percent berried females:	2	Percent seedlings:	0
Percent dead shrubs:	<1%	Juniper morphology:	Prostrate

Assessment data:

Parameter	Criterion	Result	Assessment
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	5	Unfavourable- Inadequate
	%_berried	Fail	
	%_seedlings	Fail	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Pass	
	Negative species	Pass	
Future prospects:			Unfavourable- Inadequate
OVERALL ASSESSMENT:			UNFAVOURABLE- INADEQUATE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.02.05	Non-intensive mixed animal grazing	Neutral	Medium	100	Cattle, horses, sheep
G05.09	Fences, fencing	Neutral	Low	100	Fences (old and new)
J01.01	Burning down	Negative	High	51-75	
K04.05	Damage by herbivores (including game species)	Neutral	Low	100	Hare grazing

Site description:

The area surveyed mainly follows the boundary mapped after the NPWS ranger survey in 2015. An additional area was mapped to the east of the larger polygon and north of the smaller to make one large polygon. Juniper is present on the tops and sides of the rocky outcrops but is absent from the *Molinia caerulea*-dominated areas between the outcrops and from the more exposed seaward rocks.

Management is by mixed animal grazing at an appropriate level. However, signs of burning in the last couple of years are visible and Juniper plants appear to have been damaged. Only one mature (berried) female was seen, all others were unberried and may be regenerating mature plants or juveniles establishing post fire event.

Other species of note recorded during the survey were Hare, butterflies (Grayling, Common Blue, Ringlet, Meadow Brown) and Ireland's largest fly, *Tachina grossa*. *Ulex gallii* is very frequent throughout the polygon and is possibly filling the Juniper niche. Patches of Juniper occur along the

coastal edge up to monitoring stop 4. In some areas Juniper plants were more widely separated from each other (on occasion perhaps slightly more than 20m) but were included in the formation as Juniper was constantly present throughout.

Management recommendations:

Explore the use of protective structures for seedlings and developing plants to protect from grazers.

Monitor grazing levels.

Site DL02 Binnion A, Co. Donegal

002012 North Inishowen Coast SAC

Summary site data:

Location (Irish Grid):	236412_448561	Discovery map:	3
Area (ha):	1.258	No. of formations:	1
Juniper population:	301-1,000	No. of monitoring stops (2017):	2
Percent berried females:	44	Percent seedlings:	0
Percent dead shrubs:	0	Juniper morphology:	Prostrate

Assessment data:

Parameter	Criterion	Result	Assessment
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	6	Favourable
	%_berried	Pass	
	%_seedlings	Fail	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Pass	
	Negative species	Pass	
Future prospects:			Favourable
OVERALL ASSESSMENT:			FAVOURABLE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
I01	Invasive non-native species	Neutral	Low	<1	Cotoneaster
I02	Problematic native species	Neutral	Low	26-50	Bracken

Site description:

The site polygon has been altered significantly from the baseline. All of the baseline polygon was found to be either sandy beach or dense bracken. Juniper habitat covered the rocky outcrops east of the baseline polygon and occurred with heathy species such as *Calluna vulgaris*, *Erica cinerea* and occasionally *Vaccinium myrtillus*. There was much boulder scree in the area, and Juniper occurred in these areas at a good density. Many of the Juniper plants were very large and spreading (>5m diameter) and the undisturbed nature of the habitat generally seems suitable for growth of Juniper plants. No management regime appears to be in place. The vegetation is very tall and difficult to move through, especially as boulder scree occurs underneath much of it. Bracken is dense downslope of the formation and is likely to act as a barrier to further spread of Juniper in that direction. Bracken occurs to some extent throughout the Juniper habitat but does not appear to be impacting unduly on the Juniper here. *Cotoneaster* is occasional but does not appear to be having a negative effect on Juniper.

Management recommendations:

Maintain current management regime. Monitor invasive and problematic species and take action if they start to negatively affect the Juniper formation.

Site DL05 Fanad A, Co. Donegal

Not in SAC

Summary site data:

Location (Irish Grid):	223023_445711	Discovery map:	2
Area (ha):	3.888	No. of formations:	1
Juniper population:	1,001-3,000	No. of monitoring stops (2017):	4
Percent berried females:	34	Percent seedlings:	<1%
Percent dead shrubs:	0	Juniper morphology:	Prostrate

Assessment data:

<i>Parameter</i>	<i>Criterion</i>	<i>Result</i>	<i>Assessment</i>
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	7	Favourable
	%_berried	Pass	
	%_seedlings	Pass	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Pass	
	Negative species	Pass	
Future prospects:			Favourable
OVERALL ASSESSMENT:			FAVOURABLE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.02.02	Non-intensive sheep grazing	Neutral	Medium	100	
D01.01	Paths, tracks, cycling tracks	Neutral	Low	1-25	
K01.01	Erosion	Neutral	High	100	Natural

Site description:

This site appears to have changed significantly since the baseline. The habitat now occurs over degraded blanket bog and heath with large areas of exposed rock and peat with abundant *Calluna vulgaris*. Some old sheep droppings were seen but no sheep. The area looks as though it has either been overgrazed in the past or disturbed in some way, although there were no signs of recent burning. In many places the Juniper plants are very small, stunted and dispersed. Some of these are mature (berries seen) and others may be genuine juveniles. Several seedlings were seen. Other plants were large and spreading. No obvious management regime was in place. A recently quarried area is being used for dumping of builder's rubble and other refuse. Other species found: Emperor Moth caterpillar.

Management recommendations:

Despite extensive erosion, 5130 habitat at this site passed the assessments across all three parameters. As the site is in a post-disturbance phase it is important that grazing levels be monitored and if possible kept low. Seedlings were recorded on this site, so maintaining suitable grazing levels over the next 5-10 years is crucial to allow seedlings to reach reproductive maturity.

Site DL09 Dawros Head Complex, Co. Donegal

000197 West Of Ardara/Maas Road SAC

Summary site data:

Location (Irish Grid):	165656_398238	Discovery map:	10
Area (ha):	218.971	No. of formations:	27
Juniper population:	50,001-100,000	No. of monitoring stops (2017):	9
Percent berried females:	27	Percent seedlings:	<1%
Percent dead shrubs:	<1%	Juniper morphology:	Prostrate and spreading

Assessment data:

<i>Parameter</i>	<i>Criterion</i>	<i>Result</i>	<i>Assessment</i>
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	7	Favourable
	%_berried	Pass	
	%_seedlings	Pass	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Pass	
	Negative species	Pass	
Future prospects:			Favourable
OVERALL ASSESSMENT:			FAVOURABLE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.02.01	Non-intensive cattle grazing	Positive	Medium	1-25	
A04.02.02	Non-intensive sheep grazing	Positive	Medium	51-75	
A04.02.03	Non-intensive horse grazing	Positive	Medium	1-25	
I02	Problematic native species	Negative	Medium	<1	Bracken
K02.01	Species composition change (succession)	Negative	Low	<1	Scrub
K04.05	Damage by herbivores (including game species)	Positive	Low	100	Rabbit/Hare

Site description:

The site area has been reduced significantly from the baseline due to a change in interpretation and definition of a Juniper formation. Only areas where Juniper formations were recorded were mapped. Previously the site included areas with no Juniper formations. In areas of the site there are large numbers of small plants. Larger plants were found in areas with little or no grazing. The predominant habitats within the site are wet heath and lowland blanket bog. Calcareous dry heath is notable on the Dawros headland. Due to the large area of the original site, not all areas were surveyed on the ground and some areas were excluded based on aerial photograph interpretation.

Management recommendations:

Maintain current management regime.

Site DL12 Cruit Island, Co. Donegal

001141 Gweedore Bay And Islands SAC

Summary site data:

Location (Irish Grid):	173798_419973	Discovery map:	1
Area (ha):	36.887	No. of formations:	12
Juniper population:	10,001-50,000	No. of monitoring stops (2017):	8
Percent berried females:	34	Percent seedlings:	0
Percent dead shrubs:	0	Juniper morphology:	99% prostrate, 1% spreading

Assessment data:

Parameter	Criterion	Result	Assessment
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	6	Favourable
	%_berried	Pass	
	%_seedlings	Fail	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Pass	
	Negative species	Pass	
Future prospects:			Favourable
OVERALL ASSESSMENT:			FAVOURABLE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A10.01	Removal of hedges and copses or scrub	Negative	High	<1	Removal of Juniper
E03.01	Disposal of household / recreational facility waste	Negative	Low	<1	
G01.03.02	Off-road motorized driving	Negative	Low	<1	
G05.01	Trampling, overuse,	Neutral	Medium	1-25	
I01	Invasive non-native species	Negative	Low	<1	<i>Hippophae</i> and <i>Montbretia</i>
I02	Problematic native species	Neutral	Low	<1	Bracken
K04.05	Damage by herbivores (including game species)	Positive	Low	100	Hare grazing

Site description:

This site is an island in the northwest of Donegal joined to the mainland by a narrow bridge. Juniper is scattered throughout much of the island, although it is absent from some areas where *Empetrum nigrum* is abundant. In the western part of the island there is only scattered Juniper on rocks and *Empetrum nigrum* seems to be filling the niche that Juniper might occupy. Formations of >50 Juniper plants occur on fixed dunes and in dry heath. Large areas were mapped out due to a change between the baseline and 2017 surveys in interpretation and definition of what constitutes a Juniper formation.

In contrast to the baseline survey no sheep grazing was observed and the current situation seems appropriate, although no definitive management regime appears to be in place. Trampling appears to be partly positive as other sward species are kept in check.

Other Annex I habitats on site include 4030 Dry heaths, 2130 Fixed dunes, 2170 *Salix repens* dunes. Other species recorded include Fox, Hare, Chough, Skylark, Cuckoo, Pheasant, Stonechat, possible Reed warbler. Abundant *Succisa pratensis* was noted, so this is a potential Marsh Fritillary site. The following butterflies were recorded: Green-veined White, Orange Tip, Peacock, Small Tortoiseshell. The bumblebees *Bombus lucorum*, *B. terrestris* and *B. pascuorum* were also recorded.

Management recommendations:

Maintain current management regime.

Site DL15 Viking House, Co. Donegal

001141 Gweedore Bay And Islands SAC

Summary site data:

Location (Irish Grid):	174128_418859	Discovery map:	1
Area (ha):	17.704	No. of formations:	5
Juniper population:	1,001-3,000	No. of monitoring stops (2017):	8
Percent berried females:	19	Percent seedlings:	0
Percent dead shrubs:	0	Juniper morphology:	Prostrate and spreading

Assessment data:

<i>Parameter</i>	<i>Criterion</i>	<i>Result</i>	<i>Assessment</i>
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	6	Favourable
	%_berried	Pass	
	%_seedlings	Fail	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Pass	
	Negative species	Pass	
Future prospects:			Unfavourable- Inadequate
OVERALL ASSESSMENT:			UNFAVOURABLE- INADEQUATE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.03	Abandonment of pastoral systems, lack of grazing	Negative	Low	51-75	
E03.01	Disposal of household / recreational facility waste	Negative	High	<1	Building rubble dumped on 5130
G01.03.02	Off-road motorized driving	Negative	Low	<1	
I01	Invasive non-native species	Negative	Low	<1	Rhododendron and Montbretia
I02	Problematic native species	Negative	Low	<1	Bracken
J02.11.01	Dumping, depositing of dredged deposits	Negative	High	<1	Spoil placed on habitat from drain digging
K01.01	Erosion	Neutral	Low	51-75	Natural, by exposure
K02.01	Species composition change (succession)	Negative	Low	<1	Brambles, Scots Pine

Site description:

In this site the Juniper formations occurred in wet heath (*Molinia caerulea*, *Trichophorum germanicum*, *Calluna vulgaris*, *Schoenus nigricans*, *Myrica gale*), generally on rocky outcrops, but also in *Molinia* swards.

In contrast to the baseline survey no sheep grazing was observed and the site is now undermanaged and undergrazed. Juniper occurs primarily on rocky outcrops and eroded wet heath, often where the *Calluna vulgaris* has been damaged or kept in check.

Other habitats adjacent include reed swamp (FS1) and scrub (brambles). Saltmarsh (Annex I habitat 1330) is also adjacent. A Hare was seen on site.

Management recommendations:

Some negative practices such as Juniper scrub clearance and dumping of spoil and rubble on 5130 habitat were noted during the survey and should be stopped.

Parts of the site appear to be suffering from abandonment and succession to other scrub habitats, so trialling new grazing regimes would be helpful to open up the habitat and prevent vegetation from becoming too tall and rank to support 5130 habitat.

On eroded areas grazing should be kept low to promote establishment of Juniper seedlings. If necessary, the possibility of using protective structures for seedlings and developing plants should be explored.

Invasive species were noted on site. While their impact is currently low, they should be removed to prevent further spread.

Site DL21 Malin, Co. Donegal

Not in SAC

Summary site data:

Location (Irish Grid):	248606_448023	Discovery map:	3
Area (ha):	0.312	No. of formations:	1
Juniper population:	50-100	No. of monitoring stops (2017):	2
Percent berried females:	35	Percent seedlings:	0
Percent dead shrubs:	0	Juniper morphology:	Spreading

Assessment data:

<i>Parameter</i>	<i>Criterion</i>	<i>Result</i>	<i>Assessment</i>
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	5	Unfavourable- Inadequate
	%_berried	Pass	
	%_seedlings	Fail	
	Germination niches	Fail	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Pass	
	Negative species	Pass	
Future prospects:			Unfavourable- Inadequate
OVERALL ASSESSMENT:			UNFAVOURABLE- INADEQUATE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
K02.01	Species composition change (succession)	Negative	Medium	26-50	Scrub

Site description:

The site is largely unchanged since the baseline survey. The area is very scrubby and generally overgrown, with encroachment from *Ulex europaeus*, *Corylus avellana* and *Rubus fruticosus*. Some Juniper bushes show signs of stress, with some branches completely dead and others browning. Many of the Juniper bushes are very big and sprawling and were often found on the rocky outcrops on site in *Calluna vulgaris* and *Erica cinerea*. Juniper bushes were also found growing by the roadside. Peat extraction is occurring adjacent to the site. Mushroom sheds are adjacent to the north.

Management recommendations:

The site would benefit from some management, e.g. grazing or clearance of rank vegetation.

Site DL30 Ballynacarrick, Co. Donegal

000115 Ballintra SAC

Summary site data:

Location (Irish Grid):	192838_368484	Discovery map:	11
Area (ha):	6.645	No. of formations:	2
Juniper population:	3,001-10,000	No. of monitoring stops (2017):	4
Percent berried females:	23	Percent seedlings:	<1%
Percent dead shrubs:	<1%	Juniper morphology:	Prostrate and spreading

Assessment data:

<i>Parameter</i>	<i>Criterion</i>	<i>Result</i>	<i>Assessment</i>
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	7	Favourable
	%_berried	Pass	
	%_seedlings	Pass	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Pass	
	Negative species	Pass	
Future prospects:			Favourable
OVERALL ASSESSMENT:			FAVOURABLE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.02.01	Non-intensive cattle grazing	Positive	Medium	100	
J02.07	Water abstractions from groundwater	Neutral	Low	1-25	Drainage
K02.01	Species composition change (succession)	Negative	Medium	1-25	Gorse and Hazel

Site description:

No Juniper plants were present in the southern part of the baseline polygon. This area was very wet. Formations were present in the northern section of the baseline polygon. Additional formations were mapped to the west of the original site, mainly in calcareous grassland, with *Sesleria caerulea*, *Anthoxanthum odoratum*, *Briza media* and *Succisa pratensis*. Wet hollows were interspersed among these areas. Scrub habitat with *Corylus avellana* and Juniper was also present. Relevé 1 was recorded in this habitat. The site is cattle-grazed, although no cattle were present at the time of survey. Some supplementary feeding was noted but this occurred outside Juniper habitat. Some old drainage channels were also present. A small amount of hazel and gorse scrub encroachment was observed.

Management recommendations:

Maintain current management regime.

Site DL31 Melmore Head, Co. Donegal

000194 Tranarossan And Melmore Lough SAC

Summary site data:

Location (Irish Grid):	213238_444277	Discovery map:	2
Area (ha):	4.465	No. of formations:	1
Juniper population:	301-1,000	No. of monitoring stops (2017):	4
Percent berried females:	38	Percent seedlings:	0
Percent dead shrubs:	0	Juniper morphology:	50% prostrate, 50% spreading

Assessment data:

<i>Parameter</i>	<i>Criterion</i>	<i>Result</i>	<i>Assessment</i>
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	6	Favourable
	%_berried	Pass	
	%_seedlings	Fail	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Pass	
	Negative species	Pass	
Future prospects:			Favourable
OVERALL ASSESSMENT:			FAVOURABLE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.02.01	Non-intensive cattle grazing	Neutral	Low	26-50	
G01.02	Walking, horseriding and non-motorised vehicles	Neutral	Low	1-25	Walking

Site description:

The site has been extended beyond the baseline polygon. The associated habitat is mostly siliceous dry heath. The Juniper shrubs growing here are mostly large, mature plants, often covering several square metres each. The eastern part of the polygon in particular, which coincides approximately with the baseline polygon, has many Juniper shrubs occurring at a high density. Juniper density is lower in the western part of the site and is sometimes too scattered to qualify as Juniper formation. In this part of the site, Juniper is more prevalent on the sides of rocky outcrops rather than on top of the rocky outcrops themselves, which is different from what was noted in other sites.

Cattle graze the western part of the site and the lower proportions of Juniper here may be as a result of grazing or trampling. There are more bare rocks and bare peat in this area too, probably because of grazing.

No seedlings were seen. Juniper is generally healthy, with good numbers of mature females with ripe berries.

Management recommendations:

Maintain current management regime.

Monitor grazing to ensure no damage to Juniper habitat is occurring. Structure and functions were generally good but no seedlings were found on site; this may be a consequence of grazing. If necessary, the possibility of using protective structures for seedlings and developing plants should be explored.

Site GY07 Tirneevin, Co. Galway

000252 Coole-Garryland Complex SAC

Summary site data:

Location (Irish Grid):	142353_202260	Discovery map:	52
Area (ha):	11.555	No. of formations:	3
Juniper population:	1,001-3,000	No. of monitoring stops (2017):	6
Percent berried females:	21	Percent seedlings:	<1%
Percent dead shrubs:	>10%	Juniper morphology:	50% prostrate, 50% spreading

Assessment data:

Parameter	Criterion	Result	Assessment
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	5	Unfavourable- Inadequate
	%_berried	Pass	
	%_seedlings	Pass	
	Germination niches	Pass	
	%_alive	Fail	
	%_browning	Pass	
	Browser damage	Fail	
	Negative species	Pass	
Future prospects:			Unfavourable- Inadequate
OVERALL ASSESSMENT:			UNFAVOURABLE- INADEQUATE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.02.05	Non-intensive mixed animal grazing	Neutral	Low	100	Horses and Cattle
L08	Inundation (natural processes)	Negative	High	26-50	Turlough flooding

Site description:

This site suffered significant losses in numbers of Juniper shrubs, possibly due to unusually prolonged flooding of turlough. Many tall and/or old individuals were totally dead in the flood zone. There has been a large area loss of the formation as a result. Only one Juniper seedling was seen. Dead *Ulex europaeus* and *Taxus baccata* individuals were also present, though many gorse seedlings were found where the full relevé was recorded. The main habitat types are either heathy, with *Molinia* leaf litter abundant, or else occur on limestone pavement. Some 5130 habitat also occurs at the edge of *Corylus* scrub but does not persist underneath it.

The habitat is in very poor condition where flooding occurred, although plants are healthy when outside flood zone. This appears to have been an extreme and prolonged flood event, perhaps exacerbated by concurrent freezing conditions. Management otherwise seems appropriate and grazing is not excessive.

From the aerial photograph it is likely that other Juniper formations may be located northwest of the western strip of the site, on the other side of the turlough. There appear to be similar areas of gorse scrub. The gorse did not seem to pose a significant barrier to establishment or persistence of Juniper in the surveyed area.

Management recommendations:

As the site is in a post-disturbance phase it is important that grazing levels be monitored and if possible kept low. Seedlings were recorded on this site outside the monitoring stops, so maintaining suitable grazing levels over the next 5-10 years is crucial to allow seedlings to reach reproductive maturity.

Site GY08 Cappacashen, Co. Galway

001926 East Burren Complex SAC

Summary site data:

Location (Irish Grid):	138097_203672	Discovery map:	52
Area (ha):	502.360	No. of formations:	1
Juniper population:	>100,000	No. of monitoring stops (2017):	8
Percent berried females:	45	Percent seedlings:	<1%
Percent dead shrubs:	<1%	Juniper morphology:	65% prostrate, 35% spreading

Assessment data:

Parameter	Criterion	Result	Assessment
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	7	Favourable
	%_berried	Pass	
	%_seedlings	Pass	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Pass	
	Negative species	Pass	
Future prospects:			Favourable
OVERALL ASSESSMENT:			FAVOURABLE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.02.05	Non-intensive mixed animal grazing	Positive	Medium	100	Cattle and Horses
A05.02	Stock feeding	Negative	Medium	<1	Supplementary feeding
I01	Invasive non-native species	Negative	Low	<1	<i>Cotoneaster</i>
I02	Problematic native species	Neutral	Low	<1	

Site description:

This is an extensive site of limestone pavement and calcareous heath and some areas of dry heath. The vast majority of this limestone plain is 5130, with only small areas occurring where Juniper was absent from 30x30m areas. There are essentially two densities of Juniper, one in limestone pavement where the density is approximately 25 plants per hectare, and the other in HH2 calcareous heath which is considerably higher, in excess of 800 plants per hectare. Any changes to area are due to interpretation. The boundary of the site was extended and the estimate of plants increased. A small number of seedlings were found.

Cattle and horses graze the site, which is a positive management impact and this should be continued. Management seems generally appropriate. One recommendation would be to move supplementary feeders to outside the Juniper formation habitat. The site could also be brought into the Burren programme, if not already in it. Some damage to Juniper from grazer trampling was noted, especially in grassy areas with Juniper, but overall grazing was positive.

Filipendula vulgaris is present on site, probably in excess of 1000 plants across the whole site. Other species typical of limestone pavement and calcareous habitats were found, including *Gentiana verna*

and *Orchis mascula*, and *Dryas* heath (Annex I habitat 4060 Alpine and Boreal Heaths) was also present.

Management recommendations:

Maintain current management regime.

Site GY09 Cloghboley A, Co. Galway

Not in SAC

Summary site data:

Location (Irish Grid):	142961_212588	Discovery map:	52
Area (ha):	1.256	No. of formations:	1
Juniper population:	1,001-3,000	No. of monitoring stops (2017):	4
Percent berried females:	32	Percent seedlings:	0
Percent dead shrubs:	5%	Juniper morphology:	Spreading

Assessment data:

Parameter	Criterion	Result	Assessment
Area:	% annual change in area	3.3% annual loss	Unfavourable-Bad
Structure & functions:	No. of criteria passed	5	Unfavourable-Inadequate
	%_berried	Pass	
	%_seedlings	Fail	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Fail	
	Negative species	Pass	
Future prospects:			Unfavourable-Bad
OVERALL ASSESSMENT:			UNFAVOURABLE-BAD

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.02.01	Non-intensive cattle grazing	Positive	High	100	
D01.02	Roads, motorways	Negative	High	1-25	Construction

Site description:

Motorway construction at the northeast edge of the site has resulted in some habitat loss. The site is cattle grazed throughout the year, perhaps all year round including winter. The site was very poached and trampling damage to Juniper was noted, but the Juniper itself does not seem to have been grazed. Some browning of plants and some dead plants were noted, the latter especially at the boundary of the site adjacent to the new road.

While grazing is heavy the overall effect is probably beneficial, although too much grazing may affect recruitment and has caused some damage to Juniper plants. The 5130 habitat has been negatively impacted by building a road through the site.

Dryas octopetala is present on site. The main habitat is calcareous heath with Juniper, *Calluna vulgaris*, *Molinia caerulea*, *Sesleria caerulea* and high bryophyte cover. Juniper is absent northeast of the gorse scrub so this area was mapped out. A few Juniper plants were seen in scrub at the edge of the site but a wall delimited it from the rest of the formation so this area was not included in the site.

Management recommendations:

Maintain some level of grazing at the site, as this keeps the habitat open. However, a slight reduction would probably benefit the Juniper habitat by reducing damage to the Juniper plants and allowing seedlings to establish.

Site GY16 Caherateige, Co. Galway

002244 Ardrahan Grassland SAC

Summary site data:

Location (Irish Grid):	144677_213447	Discovery map:	52
Area (ha):	74.438	No. of formations:	3
Juniper population:	10,001-50,000	No. of monitoring stops (2017):	9
Percent berried females:	25	Percent seedlings:	0
Percent dead shrubs:	<1%	Juniper morphology:	Prostrate and spreading

Assessment data:

Parameter	Criterion	Result	Assessment
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	5	Unfavourable- Inadequate
	%_berried	Pass	
	%_seedlings	Fail	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Fail	
	Negative species	Pass	
Future prospects:			Unfavourable- Inadequate
OVERALL ASSESSMENT:			UNFAVOURABLE- INADEQUATE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.02.05	Non-intensive mixed animal grazing	Neutral	Medium	100	Cattle and Horses
K02.01	Species composition change (succession)	Negative	Low	1-25	<i>Molinia</i> , taller scrub

Site description:

This site consists of three separate formations. Juniper density is high in rocky areas which also have 4060 Alpine and Boreal heath with *Dryas octopetala*. Juniper density is slightly lower in areas with high *Molinia caerulea* cover but the lowest density is seen in grassier areas. 6210 grassland is adjacent to Juniper habitat in some areas, and the two exist as a mosaic on occasion.

The site is lightly grazed by cattle and horses which keeps the habitat open. Some winter grazing takes place, though this is also light. Some damage to Juniper plants was evident in monitoring plots. Apart from this the Juniper habitat is in good condition as evidenced by the high density and general lack of dead plants. However, no seedlings were seen, possibly a consequence of grazing.

Other species noted during the survey include Cuckoo, Stonechat and Hare. The site area was extended considerably to the south, more than doubling the area of mapped 5130 habitat at the site.

Management recommendations:

Grazing at this site is generally beneficial as it keeps the vegetation from becoming too rank. However some areas suffer from undergrazing, with *Molinia caerulea* becoming more abundant, while in other areas the Juniper plants show signs of browser damage. Getting the grazing right at this site is therefore the main management task recommended.

As this SAC is designated for 5130 Juniper formations and 4060 Alpine and Boreal heaths, it is important that whatever management regime is in place operates for the benefit of both qualifying interests. If the landowner were to join a scheme such as the Burren programme or some other results-based scheme, this would be likely to improve the conservation value of the site further.

Site GY24 Dawros More, Co. Galway

002031 The Twelve Bens/Garraun Complex SAC

Summary site data:

Location (Irish Grid):	70344_259105	Discovery map:	37
Area (ha):	16.094	No. of formations:	1
Juniper population:	3,001-10,000	No. of monitoring stops (2017):	6
Percent berried females:	14	Percent seedlings:	<1%
Percent dead shrubs:	0	Juniper morphology:	Prostrate

Assessment data:

Parameter	Criterion	Result	Assessment
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	6	Favourable
	%_berried	Pass	
	%_seedlings	Pass	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Fail	
	Negative species	Pass	
Future prospects:			Favourable
OVERALL ASSESSMENT:			FAVOURABLE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.02.05	Non-intensive mixed animal grazing	Positive	Medium	100	Cattle and Deer
D01.01	Paths, tracks, cycling tracks	Negative	Low	<1	Machinery track
I01	Invasive non-native species	Negative	Low	<1	Rhododendron

Site description:

The site comprises a large expanse of wet heath. Juniper is found on the rocky knolls that are a feature of this site. The main wet heath species include *Molinia caerulea*, *Calluna vulgaris*, *Schoenus nigricans*, *Eriophorum angustifolium* and *Narthecium ossifragum*. Small areas of dry heath are also present on the knolls where *Calluna vulgaris* and *Erica cinerea* occur with Juniper. Juniper is absent from the flushed areas between the rocky knolls.

There was evidence of cattle and deer grazing but no animals were present at the time of survey. *Rhododendron ponticum* and *Pinus* saplings were present within the habitat. The following invasive species were present in areas adjacent to the Juniper habitat: *Gunnera tinctoria*, *Crocsmia x crocosmiiflora*, *Allium triquetrum* and *Rhododendron ponticum*. Small areas of the site were burnt in the past. Machinery tracks were also noted although this affected only a small area of the Juniper habitat.

Other species noted during the survey include Hare, Common lizard and tiger beetle. The eastern boundary of the site is delimited by the track, and it is possible that some of the adjacent rocky knolls in this area may also support Juniper formations.

Management recommendations:

Maintain current grazing regime.

Control invasive species while numbers are still relatively low. Priority should be given to removing non-natives growing in the formation, but there were several other species noted in close proximity to 5130 habitat, and these should also be eradicated to prevent further spread into the habitat.

Site GY30 Lough Corrib, Co. Galway

000297 Lough Corrib SAC

Summary site data:

Location (Irish Grid):	128088_240986	Discovery map:	45
Area (ha):	9.223	No. of formations:	1
Juniper population:	1,001-3,000	No. of monitoring stops (2017):	4
Percent berried females:	37	Percent seedlings:	<1%
Percent dead shrubs:	>10%	Juniper morphology:	95% prostrate, 5% spreading

Assessment data:

Parameter	Criterion	Result	Assessment
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	4	Unfavourable-Bad
	%_berried	Pass	
	%_seedlings	Fail	
	Germination niches	Pass	
	%_alive	Fail	
	%_browning	Pass	
	Browser damage	Fail	
	Negative species	Pass	
Future prospects:			Unfavourable-Bad
OVERALL ASSESSMENT:			UNFAVOURABLE-BAD

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.02.01	Non-intensive cattle grazing	Positive	Low	100	
A10.01	Removal of hedges and copses or scrub	Negative	High	<1	Scrub clearance, including some Juniper
E03.03	Disposal of inert materials	Negative	High	<1	Land clearance / deposition of spoil
L08	Inundation (natural processes)	Negative	Medium	26-50	

Site description:

This site is in the floodplain of Lough Corrib and the Juniper mostly occurs either on limestone rock and calcareous fen or in a more scrubby situation which is drier and grassy rather than dominated by *Schoenus nigricans*. The site suffers from undergrazing and the after-effects of flooding.

The site is lightly grazed (possibly undergrazed) by cattle with the sward overtopping Juniper in some areas. There were many dead Juniper bushes possibly linked to a prolonged flood event. There were signs of recovery in that many juvenile Junipers have established (probably > 4 years old).

Hairy shield bug was seen during the survey. Other Annex I habitats adjacent to the 5130 habitat include 7230 Calcareous fen and 6210 Calcareous grassland, potentially orchid-rich. Lough Corrib itself is a marl lake (Annex I habitat 3140). Fauna noted include two Snipe, a Hare, two frogs and a flock of seven Greenland white-fronted geese.

Management recommendations:

As the site is in a post-disturbance phase after flooding, it is important that grazing levels be monitored and if possible kept sufficiently low to allow seedlings to establish. At the same time, however, the level should be high enough to remove overtopping vegetation. Some trialling of different grazing levels in different areas may be required to find the right balance. No seedlings were recorded on this site, so maintaining suitable grazing levels is crucial to allow seedlings to establish and reach reproductive maturity.

Site GY31 Forest Pk Lavins Caravan, Co. Galway

002241 Lough Derg, North-East Shore SAC

Summary site data:

Location (Irish Grid):	184068_202928	Discovery map:	53
Area (ha):	1.133	No. of formations:	2
Juniper population:	301-1,000	No. of monitoring stops (2017):	2
Percent berried females:	72	Percent seedlings:	0
Percent dead shrubs:	0	Juniper morphology:	Upright

Assessment data:

Parameter	Criterion	Result	Assessment
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	5	Unfavourable- Inadequate
	%_berried	Pass	
	%_seedlings	Fail	
	Germination niches	Fail	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Pass	
	Negative species	Pass	
Future prospects:			Unfavourable- Inadequate
OVERALL ASSESSMENT:			UNFAVOURABLE- INADEQUATE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
D01.01	Paths, tracks, cycling tracks	Neutral	Low	1-25	Informal paths
G05.09	Fences, fencing	Positive	Low	100	Deer fence adjacent
H05.01	Garbage and solid waste	Negative	Low	<1	Small amount of litter
I01	Invasive non-native species	Negative	Low	100	Scots pine common

Site description:

This site is within Portumna Forest Park along the shores of Lough Derg. Juniper formations, comprised of upright Juniper shrubs, are present along the recreational paths and on some of the small peninsulas of the lough. Juniper formation occurs as scrub (WS1) habitat and is also present on non-Annex calcareous fen (PF1). As well as the Juniper, gorse is also present in the scrub habitat. Common species in the calcareous fen include *Sesleria caerulea*, *Molinia caerulea*, *Schoenus nigricans* and *Campanula rotundifolia*.

Scattered *Pinus sylvestris* saplings and small trees were found among the Juniper formations. A deer fence is present along the eastern boundary of the eastern-most polygon. A deer was observed on the outside of this fence. There were no signs of grazing noted within the habitat.

Upright Juniper is present at this site. The main adjacent habitat is Annex I 7210 *Cladium mariscus* fen.

Management recommendations:

As no seedlings or germination niches were recorded in monitoring stops for this site, this is the main problem that needs to be addressed. One option is to introduce a low level of grazing to curb the spread of unwanted scrub species, such as *Pinus sylvestris*. Grazers would also introduce germination niches by creating bare patches in the soil which would be suitable microsites for germination. Alternatively, manual creation of bare ground by hand, preferably in the vicinity of fruiting female plants, should increase the chances of seedlings becoming established. As an additional measure, protective structures could be erected over bare patches close to mother plants to maximise the likelihood of seedling establishment.

Site KY01 Abbey Island, Co. Kerry

002158 Kenmare River SAC

Summary site data:

Location (Irish Grid):	51900_58300	Discovery map:	0
Area (ha):	Non-formation	No. of formations:	0
Juniper population:	10-30	No. of monitoring stops (2017):	0
Percent berried females:	n/a	Percent seedlings:	0
Percent dead shrubs:	<1%	Juniper morphology:	Spreading

Assessment data:

NOT ASSESSED

Site description:

This site appears unchanged since the baseline survey. It is not a full formation and is separated from KY02 by a stretch of sandy beach approximately 80m wide so cannot be merged with that site either. It consists of a number of very large Juniper plants on the edge of a low coastal cliff which appears to be undergoing some attrition due to natural erosion. The cliff edge is fenced off but some small Juniper plants are present on the landward side of the fence.

While the site is mostly fenced off from grazers, natural erosion is exposing the roots of the large plants at the cliff edge. This small sub-population may only have a limited lifespan, but it is difficult to see what measures can be taken to protect it. The rocky outcrops south of the baseline relevé were all searched for Juniper but only two plants were found. Kerry Lily (*Simethis planifolia*) is present on Abbey Island.

The number of shrubs is very difficult to determine due to the intermeshed nature and/or large size of the plants. There may in fact only be around 10 of those plants, as estimated by Cooper, but a number of smaller plants apparently separate, on the landward side of the fence brought the numbers up but not sufficiently to make a formation. There is little doubt, however, that KY01 and KY02 have the ability to cross-pollinate. *Ulex gallii* is filling the niche that Juniper could occupy. A monitoring stop was recorded but no photos were taken and the site was not assessed.

Management recommendations:

If an agreement could be reached with the owner of the grazing land adjacent to the formation to fence off an area of the field at the cliff side where small Juniper plants were seen, this would allow the possibility of the formation extending in a landward direction to compensate for any losses that are likely to occur at the seaward side due to erosion. The future prospects of this site are bad at the moment, but planting local provenance seeds and cuttings might be a worthwhile exercise.

Site KY02 Derrynane, Co. Kerry

002158 Kenmare River SAC

Summary site data:

Location (Irish Grid):	51932_58406	Discovery map:	0
Area (ha):	0.264	No. of formations:	1
Juniper population:	50-100	No. of monitoring stops (2017):	1
Percent berried females:	5	Percent seedlings:	0
Percent dead shrubs:	0	Juniper morphology:	Spreading

Assessment data:

Parameter	Criterion	Result	Assessment
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	4	Unfavourable-Bad
	%_berried	Fail	
	%_seedlings	Fail	
	Germination niches	Fail	
	%_alive	Pass	
	%_browning	Pass	
	Brower damage	Pass	
	Negative species	Pass	
Future prospects:			Unfavourable-Bad
OVERALL ASSESSMENT:			UNFAVOURABLE-BAD

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
G01.02	Walking, horseriding and non-motorised vehicles	Neutral	Low	1-25	Walkers
K01.01	Erosion	Negative	Medium	1-25	

Site description:

The site is unchanged since the baseline. It consists of two islands plus the cliff edge on the adjacent mainland, all close enough to be included in one polygon. Plants are very large and intermeshed. An accurate count was difficult to carry out for this reason, and the number of plants may have been overestimated, but the area was judged to have a sufficient mass of Juniper plants in close enough proximity to each other to be called a formation.

The site is undisturbed apart from possible erosive effects from the sea. Walkers frequent the areas, but where the Juniper grows is among rank *Festuca rubra* and *Ulex gallii*, which discourages walkers and so the Juniper plants are able to grow large and undamaged. Thick *Festuca* litter/thatch is likely to prove a barrier to Juniper seedling recruitment, however. Berries are also in short supply in this formation, possibly as a consequence of shading from adjacent vegetation.

Additional Juniper grows nearby on cliff near the southeast of the beach car park. These were too steep to access and too far away to be included with the main formation. Again they appeared to be very large plants but it seemed unlikely that the 50 plants threshold was close to being reached. KY01 Abbey Island was also deemed to be too far away to be included within the same formation as KY02.

Management recommendations:

The site suffers from a number of problems, including low berry production, no seedlings and no germination niches. It is also prone to erosion at the seaward side, so loss of Juniper shrubs in the future is a real possibility. The site is also unmanaged, so vegetation is rank.

Germination niches could be created by hand by cutting away the rank grassy vegetation and creating bare patches in the soil to assist seedling recruitment.

Berries from adjacent clusters of Juniper (e.g. KY01 and the cluster near the beach car park) may need to be harvested for seed to plant in this formation to compensate for the lack of fruiting material available in situ.

The site is small, so it is possible that only a small amount of work would be required to improve the prospects of this site. As it is the only formation recorded in this 10km square it is important that it be preserved so as to maintain the current distribution of 5130 habitat.

Site MO02 Aghinish, Co. Mayo

001774 Lough Carra/Mask Complex SAC

Summary site data:

Location (Irish Grid):	115887_268464	Discovery map:	38
Area (ha):	38.674	No. of formations:	2
Juniper population:	10,001-50,000	No. of monitoring stops (2017):	7
Percent berried females:	15	Percent seedlings:	<1%
Percent dead shrubs:	<1%	Juniper morphology:	99% prostrate, 1% spreading

Assessment data:

Parameter	Criterion	Result	Assessment
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	6	Favourable
	%_berried	Pass	
	%_seedlings	Pass	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Brower damage	Fail	
	Negative species	Pass	
Future prospects:			Unfavourable- Inadequate
OVERALL ASSESSMENT:			UNFAVOURABLE- INADEQUATE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.02.01	Non-intensive cattle grazing	Positive	Low	51-75	
A04.02.03	Non-intensive horse grazing	Negative	High	1-25	
A05.02	Stock feeding	Negative	High	<1	Supplementary feeding
A10.01	Removal of hedges and copses or scrub	Negative	High	<1	Juniper clearance
E03.03	Disposal of inert materials	Negative	High	<1	Rock spoil
G01.03.02	Off-road motorized driving	Neutral	High	<1	Tractor tracks
H05.01	Garbage and solid waste	Neutral	Low	<1	Litter
I01	Invasive non-native species	Negative	Low	1-25	<i>Cotoneaster</i> , <i>Berberis</i>
J02.07	Water abstractions from groundwater	Neutral	Medium	51-75	Drainage

Site description:

This extensive site has Juniper formations in calcareous fen, limestone pavement and scrub habitat. The main calcareous fen species are *Schoenus nigricans* and *Molinia caerulea*, with brown mosses indicative of Annex I calcareous fen also present. Dense areas of Juniper scrub are present (Plot 2). Juniper is absent from the wetter areas of calcareous fen.

Cattle were present at the time of survey. There was also evidence of horses. The southern part of the site was badly poached. The non-native invasive species *Cotoneaster* and *Berberis* were locally frequent on the limestone pavement and scrub. There was a small area close to a gate that had undergone some

Juniper clearance. A small amount of rock spoil dumped on limestone pavement was also noted. Drainage channels were a feature of the site. Supplementary feeding, tractor tracks and a small amount of litter were noted. Several *Pinus* seedlings were present.

The boundary of 5130 habitat set by the baseline survey was extended. In addition, areas of Juniper were present beyond the current boundary, especially to the north and west of the site, and possibly extending to the shores of Lough Mask. Mallard, Pheasant, Hare, Rabbit and Frog were present on site. The non-native invasive *Montbretia* was also noted on site. The eastern edge of the site has a high density of *Cotoneaster*.

Management recommendations:

Horse grazing should be reduced in the area of Juniper habitat which is currently overgrazed.

Damaging activities such as Juniper clearance, deposition of rock spoil and littering should be stopped.

Control of invasive species should be attempted, especially at the east of the site where *Cotoneaster* is a particular problem.

Stock feeders should be moved to a location away from the 5130 habitat.

Site MO04 Corraun/Clew, Co. Mayo

000485 Corraun Plateau SAC

Summary site data:

Location (Irish Grid):	78126_295062	Discovery map:	30
Area (ha):	393.259	No. of formations:	10
Juniper population:	>100,000	No. of monitoring stops (2017):	8
Percent berried females:	16	Percent seedlings:	0
Percent dead shrubs:	<1%	Juniper morphology:	Prostrate

Assessment data:

Parameter	Criterion	Result	Assessment
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	6	Favourable
	%_berried	Pass	
	%_seedlings	Fail	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Pass	
	Negative species	Pass	
Future prospects:			Favourable
OVERALL ASSESSMENT:			FAVOURABLE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.02.02	Non-intensive sheep grazing	Negative	Medium	100	
J01.01	Burning down	Negative	Low	<1	
K01.01	Erosion	Neutral	Medium	76-99	Natural

Site description:

Juniper was scattered throughout the whole survey area. Formations were present in the HH1 Dry heath, HH3 Wet heath and HH4 Alpine and Boreal heath. Juniper occurred in association with *Calluna vulgaris*, *Erica cinerea*, *Arctostaphylos uva-ursi*, *Potentilla erecta* and *Empetrum nigrum*. Juniper formations were generally most abundant in rocky locations, particularly in the northern half of the site. Juniper formations were typically absent and/or only occasional within intact wet heath/bog. However, formations were present in eroded and/or rocky wet heath habitat. Extensive continuous formations were present above an altitude of 250m.

Sheep were present but numbers were relatively low, though they were likely to have been higher in the past, which could have contributed to erosion. Sheep tracks were noted within the Juniper formations. A small amount of burning evidence was noted, though this was not recent.

Due to the size of the survey area, the survey was undertaken at a coarser resolution than other Juniper sites. The National Survey of Upland Habitats polygons were used as a guide during the survey. A wet heath relevé was conducted.

Management recommendations:

As the site is in a post-disturbance phase it is important that grazing levels be monitored and if possible kept low. The level and effect of sheep grazing should be monitored. No seedlings were recorded on this site, so maintaining suitable grazing levels over the next 5-10 years is crucial to allow seedlings to establish and reach reproductive maturity.

Burning should be strictly controlled at this site.

Site OY01 Island Fen Birr, Co. Offaly

002236 Island Fen SAC

Summary site data:

Location (Irish Grid):	212124_201385	Discovery map:	54
Area (ha):	1.641	No. of formations:	1
Juniper population:	101-300	No. of monitoring stops (2017):	2
Percent berried females:	40	Percent seedlings:	0
Percent dead shrubs:	0	Juniper morphology:	Upright

Assessment data:

<i>Parameter</i>	<i>Criterion</i>	<i>Result</i>	<i>Assessment</i>
Area:	% annual change in area	0% annual loss	Favourable
Structure & functions:	No. of criteria passed	6	Favourable
	%_berried	Pass	
	%_seedlings	Fail	
	Germination niches	Pass	
	%_alive	Pass	
	%_browning	Pass	
	Browser damage	Pass	
	Negative species	Pass	
Future prospects:			Favourable
OVERALL ASSESSMENT:			FAVOURABLE

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.02.01	Non-intensive cattle grazing	Positive	Medium	100	
D01.01	Paths, tracks, cycling tracks	Neutral	High	<1	Track
K04.05	Damage by herbivores (including game species)	Neutral	Low	100	Deer grazing

Site description:

There has been no ecological change to this site since the baseline survey. The extent of the Juniper habitat was refined due to interpretation to exclude outlier individual Juniper plants more than 20m away and large mature Juniper trees more than 100m away from the formation. Overall cover of Juniper throughout site is estimated at around 30%, with relevé 2 deemed to be more representative of the Juniper cover overall.

The site is managed by winterage (grazing between October and February). The recommendation for this site is to continue current management. No seedlings were seen during the survey. No orchids were seen on site due to the early survey date, but it is reported that there are usually large numbers in the spring time.

Management recommendations:

Maintain current management regime.

Site SO11/12 Skerrydoo 4/2, Co. Sligo

Not in SAC

Summary site data:

Location (Irish Grid):	174635_357281	Discovery map:	16
Area (ha):	2.185	No. of formations:	2
Juniper population:	1,001-3,000	No. of monitoring stops (2017):	2
Percent berried females:	40	Percent seedlings:	0
Percent dead shrubs:	<1%	Juniper morphology:	Spreading

Assessment data:

<i>Parameter</i>	<i>Criterion</i>	<i>Result</i>	<i>Assessment</i>
Area:	% annual change in area	0.6% annual loss	Unfavourable-Inadequate
Structure & functions:	No. of criteria passed	3	Unfavourable-Bad
	%_berried	Pass	
	%_seedlings	Fail	
	Germination niches	Fail	
	%_alive	Pass	
	%_browning	Fail	
	Browser damage	Fail	
	Negative species	Pass	
Future prospects:			Unfavourable-Bad
OVERALL ASSESSMENT:			UNFAVOURABLE-BAD

Impacts and Activities:

Code	Description	Influence	Intensity	%affected	Notes
A04.02.05	Non-intensive mixed animal grazing	Positive	Low	100	Cattle, sheep and horses
A10.01	Removal of hedges and copses or scrub	Negative	High	1-25	Juniper clearance
A10.01	Removal of hedges and copses or scrub	Positive	Low	1-25	Clearance of Rhododendron
E03.03	Disposal of inert materials	Negative	High	1-25	Rock Spoil
G01.03.02	Off-road motorized driving	Negative	Low	1-25	Vehicle tracks
I01	Invasive non-native species	Negative	Low	1-25	Rhododendron
J01.01	Burning down	Negative	High	1-25	
J02.07	Water abstractions from groundwater	Neutral	Medium	1-25	Drainage

Site description:

Skerrydoo 4 and Skerrydoo 2 were both surveyed as one site and the area between the two sites was also ground-truthed. The formations at Skerrydoo 4 were present across two fields, with the formation at Skerrydoo 2 confined to one field. Additional areas to the south, east and west were ground-truthed but no formations were present. The formations were generally present within a grassy HH1 Dry heath habitat. Juniper was absent from the wetter parts of the site.

Clearance of Juniper and *Rhododendron* were noted at the site. This activity has led to habitat loss. There was also evidence of burning, with charred dead Juniper observed at Skerrydoo 4. There is also

other evidence of general site improvement taking place, such as extraction of rocks. The area is being actively improved for agriculture and diggers and JCBs were observed. There was evidence of cattle, sheep and horse grazing.

No seedlings were observed, but juveniles were present. There was also a healthy population of female plants. *Rhododendron* is encroaching into site. Established *Rhododendron* is present directly adjacent to the site. Significant browning of Juniper was noted.

Management recommendations:

A number of damaging activities are currently taking place at this site, including soil removal, rock extraction and burning. Below-ground damage to Juniper plants seems to have taken place, as evidence by browning plants, so these practices should be stopped to prevent further damage to the Juniper habitat and plants.

As no germination niches were recorded in monitoring stops, the maintenance of grazing is important to keep vegetation from becoming rank. However the level of grazing should be low enough to allow seedlings to become established and survive to reproductive maturity. If necessary the use of protective structures for developing seedlings should be considered.

Site SO19 Ballinderreen, Co. Sligo

000633 Lough Hoe Bog SAC

Summary site data:

Location (Irish Grid):	138940_314186	Discovery map:	24
Area (ha):	Non-formation	No. of formations:	0
Juniper population:	0	No. of monitoring stops (2017):	0
Percent berried females:	0	Percent seedlings:	0
Percent dead shrubs:	0	Juniper morphology:	n/a

Assessment data:

NOT ASSESSED

Site description:

No Juniper was observed within the polygon or the surrounding areas. The habitat within the polygon and surrounding areas comprised *Eriophorum vaginatum*, *Trichophorum germanicum* and *Calluna vulgaris* blanket bog. There were also *Juncus/Sphagnum* flushes and drier areas with *Calluna vulgaris*, *Vaccinium myrtillus* and *Sphagnum capillifolium*.

The *Calluna vulgaris* plants in some of these areas were very tall. The site was extensively grazed by sheep (commonage). The area generally appeared too wet for Juniper, and in drier areas the *Calluna* was too tall.

One local resident spoken to said that she had never seen Juniper in the local area. There was no remaining physical evidence of the 2011 fires noted by NPWS personnel.

Management recommendations:

Remove from monitoring programme.