

JUNIPER (*Juniperus communis* ssp *communis*) Species Action Plan.

1. Introduction

Juniper *Juniperus communis* ssp *communis* is a native coniferous shrub of the British Isles. Although its centre of distribution lies within the Highlands of central and eastern Scotland, juniper also occurs at scattered localities in southern and northern England and Wales. It forms a component of a number of British plant communities as it is able to thrive on both acid and calcareous freely drained (but moist) soils at a wide range of altitudes, ranging from sea level to montane environments where it occurs on a prostrate form as ssp *nana*. In northern Britain juniper is often found within the field layer of open birch and pinewoods and on upland heaths and calcifugous grasslands. Where juniper is the most dominant woody species, it can form a unique woodland vegetation type, W19 *Juniperus communis*-*Oxalis acetosella* woodland community (National Vegetation Classification, Rodwell 1991). This northern juniper is particularly important in terms of nature conservation, and stands in Northumbria represent southern examples of this community. The ground layer of these woods can be species rich, including a typical woodland ground flora with wood anemone *Anemone nemorosa*, wood sorrel *Oxalis acetosella*, and moschatel *Adoxa moschatellina*. Juniper also supports a comparatively small, yet characteristic, native invertebrate fauna, including many species with specialised habitat requirements and restricted distribution in the UK. Juniper stands in northern England often support a mix of both northern and southern species on the edge of their range such as the Juniper Carpet *Thera juniperata* and Juniper Pug *Eupithecia pusillata*. Stands of juniper can also diversify upland bird communities, as bushes are an important food source for frugiferous birds such as fieldfares, song thrushes and ring ouzel. In the absence of other native tree cover, juniper stands also provide valuable winter shelter for Black grouse.

2. Current Status

2.1 National

Species of Conservation Concern-endangered.

Nationally, juniper is not a scarce plant. In England, however, there is concern that juniper is becoming increasingly scarce as a semi-natural vegetation type. In southern England juniper is in a critical state of decline with evidence of habitat fragmentation and contraction in range through extinctions. The poor regenerative status of British juniper stands is widely considered to be the greatest long term threat to this habitat type. In northern England juniper is also a restricted habitat type but it has been part of the local flora since the Ice Age. Again lack of regeneration has been noted.

2.2 Local

Although juniper is locally abundant in parts of Cumbria it is very localised in County Durham and Northumberland and is probably one of the most uncommon semi-natural vegetation types. Comprehensive surveys of juniper colonies in the north east of England were undertaken by English Nature in 1973 and 1994. The main sites in the National Park, excluding the Allers and Lilburn valley sites, were included in both of these surveys. The latter site was recorded in detail by English Nature in 1995. Other older surveys for Northumberland show extinction at 11 sites between 1968 and 1993. More research of historical records for the NNP will form part of the Action Plan in order to assess more accurately former distribution and extinctions within the NNP.

Table 1. Results of EN juniper colony surveys in the NNP.

Site	Grid Ref.	Status	Population 1973	1994	Density	% change
Holystone Burn woods	NY944018	SSSI	180	213	Dense/ scattered	18.3
Simonside Hills	NY985985	SSSI	79	57	Disperse d	-27.8
Hepple Whitefield south	NY994988		50	16	Disperse d	-68.8
Hepple Whitefield east	NY992992		134	107	Scattered	-20.2
Lilburn and Dodd Hill	NT990204	SSSI	No record	186	Dense/ scattered	Decreasing
Humble Law	NY959974	SSSI	No record	1		
Holystone North Wood	NT944027	SSSI	No record	0		
Seal Burn	NT949036		No record	1		
South Middleton dene	NT998221	SNCI	No record	8		
Lilburn Burn east	NU001214	SSSI	No record	51		

3. Current factors Causing Loss or decline

3.1 Grazing- The decline can be attributed to a number of factors but the outstanding factor is agricultural management practices in the form of intensive grazing, principally sheep but also cattle and the uncontrolled grazing of rabbits, deer and probably small mammals. Continual heavy grazing opens up dense stands of juniper, gradually fragmenting colonies into an open community of scattered individuals. Persistent browsing also affects bush physiognomy; they are often stunted or prostrate with a distinct browse line. Grazing in winter when juniper offers vital food and shelter is particularly damaging. The high mortality of seedlings at this time of year effectively eliminates natural regeneration and is a direct threat to the long term continuity of the juniper stand. Juniper seedlings and young plants are soft and palatable, unlike their spiny parents.

3.2 Seed production and viability- The even-agedness of juniper populations and the fragmentation of communities to give a few scattered individuals or isolated bushes has obvious implications for regeneration. Age has been found to affect reproductive output as the capacity of bushes to fruit diminishes as bushes grow older. Seed viability also decreases with age. The presence of male and female flowers on separate plants means that the isolation of individuals affects the reproductive output.

3.3 Direct clearance-Part of the scattered population at Hepple Whitefield was cleared in the 1960s.

3.4 Burning- Rotational burning of heather has been found to have affected a number of communities, one colony within the Simonside Hills SSSI appeared at one stage to be vulnerable to the local burning regime, although it is now more seriously threatened by shading by adjacent forestry.

3.5 Seral change-where grazing is absent or low and successional processes are allowed to progress this can represent a threat to juniper as a pioneer species. Seral vegetation such as tall rank grassland can inhibit the establishment of young junipers and the gradual closure of woodland canopies results in the loss of the species. In the Simonside Hills, at Hepple Whitefield and Holystone populations have been lost or reduced through afforestation.

3.6 Decline of traditional management- Until the early 20th Century juniper was used for firewood and to provide a base for wall tops and haystacks. Bushes were cut by hand and dragged out, the resultant ground disturbance providing ideal conditions for seedling regeneration.

4. Current Action

4.1 Surveys carried out by English Nature provide fairly up to date information (1995) for the main sites. Other smaller colonies which were recorded in the Phase I survey have not received more detailed survey.

4.2 Practical conservation work has been carried out by NWT at Holystone over a number of years, including planting. National Park Voluntary Wardens carried out work on a nearby site, which is in private ownership, removing conifers that threatened to shade out the juniper.

4.3 The site described in table 1 above as Hepple Whitefield south, has been fenced and 100 young junipers planted, this site is now under a Section 39 Management Agreement with the National Park Authority.

4.4 Juniper grown by local nurseries from locally sourced material (some supplied by English Nature) has been included in a number of recent new native woodland planting schemes, as a small component of W17 woodland, where the site conditions and location have been considered appropriate. Sites include Kilham Hill, Ramshope, Barrow Woodlands, Dueshill, Ramshaugh and Tosson Burgh Hill.

4.5 A substantial part of the newly designated Allers and Lilburn Valley Junipers SSSI has also been brought into management through the Forestry Commission's New Native Woodland Challenge Scheme with almost 3000 locally native juniper plants being planted.

4.6 A survey of invertebrates found on Juniper was carried out by H. Eales in 2000 at Hepple Whitefield, Ilderton Dod and Holystone Common. Juniper Shieldbug, Juniper Pug and Juniper Carpet were found at both Ilderton Dod and Hepple Whitefield. The record for Juniper Shieldbug is the most northern ever recorded in Britain. Juniper Carpet is a rare and local species in Northumberland and the distribution of Juniper Pug matches that of the food plant.

5. Broad Objectives and Targets

5.1 Maintain juniper at all known sites within the NNP.

5.2 Increase the number of plants and diversity of age structure at current sites.

5.3 Re-introduce juniper to extinct sites and include in new native woodland schemes using plants of local provenance (including Northumberland, Durham and southern Scotland).

5.4 Investigate fauna associated with juniper.

5.5 Increase awareness of juniper as a native species and use it to highlight the importance of ASNW in the NNP.

6. Proposed Action with Partners

6.1 Policy and Legislation

Action	Target	Partners	Achieving Objective
6.1.1 Develop Guiding principles for the planting of juniper.	2002	EN	2, 3

6.2 Site Safeguard and Management

Action	Target	Partners	Achieving Objective
6.2.1 Re-survey all recorded sites within the National Park, gathering full details of the population and its condition and also detailed site characteristics in order to help determine the most appropriate locations for future introductions.	2002	EN, NWT, FE, MOD, landowners, volunteers	1,5
6.2.2 Research more fully historical records for the species in the National Park.	2002	EN, NWT, FE, MOD, museums	3,5
6.2.3 Introduce appropriate management to all current sites by 2005 with the aim of enhancing the population.	2005	EN, NWT, FE, MOD, landowners	1,2
6.2.4 Include juniper in new native woodland planting schemes (W11, W17 are the appropriate NVC types for it to form a minor component species). Locations- Ilderton Moor, Hepple Whitefield, Harthope Valley, Carey Burn, Common Burn, Simonsides, Lanternside (adjacent to Holystone Burn) as part of FE restructuring plans at Holystone, Harbottle, and Threestone Burn.	5 new by 2010	FE, MOD, landowners, EN, NWT	3
6.2.5 Consider the creation of W19 woodland where site conditions and location are appropriate (in line with guiding principles).	1 by 2010	EN, FE, MOD, NWT, landowners	3
6.2.6 Consideration also to be given to where it might be a suitable addition to S39 woodlands.	Consider all by 2005.	EN	3
6.2.7 Keep and maintain a record of all sites where juniper is introduced. Ensure that all partners feed into this. Link to Records Centre if/when running.	2001 onwards	All	3,5

6.3 Species Management and Protection

Action	Target	Partners	Achieving Objective
6.3.1 Diversify the age structure where possible through natural regeneration, layering or otherwise through planting.	Experiment at one site by	EN, NWT, FE	1,2

	2003		
6.3.2 If possible gather seed from plants within the National Park to be grown on by local nursery/NWT rare tree nursery. If seed production is low consider use cuttings as an alternative.	Initiate collection by 2001	EN, FE, MOD, NWT nurseries	1,2,3
6.3.3 Re-introduce plants from local, NE or Scottish sources to extinct sites in line with guiding principles.	2 sites by 2010	EN, FE, MOD, NWT, landowners	3
6.3.4 Check planted junipers for replacements and shading from bracken. Beat up and spray bracken where necessary.	Until 5 years old	FE, MOD, EN, NWT	2,3

6.4 Advisory

Action	Target	Partners	Achieving Objective
6.4.1 Disseminate guiding principles for planting etc. when agreed with EN to other partners.	2002	FE, MOD, NWT, planting contractors	1,2,3

6.5 Future Research and Monitoring

Action	Target	Partners	Achieving Objective
6.5.1 Carry out research on associated invertebrates including recently planted sites (once juniper established).	2001 and repeat by 2010	EN, FE, NWT	4

6.6 Communications and Publicity

Action	Target	Partners	Achieving Objective
6.6.1 Increase awareness among landowners and farmers of the importance of juniper and the need to protect and enhance existing communities.	Contact managers of all existing by 2002	NWT, EN, MOD	1,5
6.6.2. Use juniper when promoting the importance of native woodland in the NNP during the Celebrating Biodiversity dedicated year.	2005	Schools, NWT, FE EN, local media.	5
6.6.3 Increase awareness of juniper through guided walks at appropriate locations and when writing articles and giving talks.	3 by 2010	NWT, FE, EN, MOD	5

7. References.

- SJ Clifton, DS Ranner & L Ward, (1995) *The Conservation of juniper in Northumbria*. EN Research Report.
- S Clifton & S Mullinger, (1995) *Juniper- A Review of its status and distribution in Northumberland*. EN
- SJ Clifton, DS Ranner & L Ward, (1997) *The Status of Juniper Juniperus communis L. in North- East England*. Biological Conservation No 79 p67-77
- SJ Clifton, (1995) *Evaluation of juniper woodland at Threestoneburn Alders SNCI, East Northumberland*. EN paper.
- HT Eales, (2000) *A survey of the insects to be found on Juniper Juniperus communis L. on three sites within the Northumberland National Park*. May to October 2000. NNP.
- JS Rodwell (1991) *British Plant Communities, Volume 1 Woodland and Scrub*. Cambridge University Press.