**European Community Directive**
**on the Conservation of Natural Habitats**
**and of Wild Fauna and Flora**
**(92/43/EEC)**

# Second Report by the United Kingdom under Article 17

## on the implementation of the Directive from January 2001 to December 2006

## Conservation status assessment for :

# H5130: *Juniperus communis* formations on heaths or calcareous grasslands

# H5130 *Juniperus communis* formations on heaths or calcareous grasslands

*Audit trail compiled and edited by JNCC and the UK statutory nature conservation agencies Lowland Grassland Lead Co-ordination Network.*

This paper and accompanying appendices contain background and data used to complete the standard EC reporting form (Annex D), following the methodology outlined in the document entitled "Assessment, monitoring and reporting under Article 17 of the Habitats Directive, Explanatory Notes & Guidelines, Final Draft 5, October 2006." The superscript numbers below cross-reference to the headings in the corresponding Annex D reporting form. This supporting information should be read in conjunction with the UK approach for habitats (see 'Assessing Conservation Status: UK Approach').

## 1. National-biogeographic level information

### 1.1 General description and correspondence with National Vegetation Classification (NVC) and other habitat types

Table 1.1.1 provides a summary description of H5130 and its relations with UK classifications.

The relationship between juniper *Juniperus communis* stands and other types of vegetation is complex. In some cases the stands have no characteristics to separate them from typical examples of heath or calcareous grassland vegetation, except for the abundance of juniper. These are often relatively recent stands. However, at some sites, particularly where the juniper has been present for a longer period, a more distinctive assemblage of species occurs. Here the juniper is associated with other shrubs, shade-tolerant herbs, grazing-sensitive tall herbs, bryophytes and ferns.

The main ecological variation occurs between stands on calcareous substrates (principally chalk and limestone but sometimes calcareous drift) and those found on acid substrates. Calcareous types are mainly found in the southern part of the UK, while acid types are mainly found in northern areas. However, both calcareous and acid types can be found on the same sites in northern England and Scotland.

In northern England and Scotland juniper is found on a wide range of acidic substrates supporting acidophilous plant communities. In many instances these are simply stands of heathland or acidic grassland that have become invaded by juniper. However, at sites where the juniper has been established for longer, the community corresponds to NVC type W19 *Juniperus communis* ssp. *communis – Oxalis acetosella* woodland. Such vegetation is typically dominated by juniper, with downy birch *Betula pubescens* and rowan *Sorbus aucuparia* often scattered throughout. The understorey is rich in acidophilous species, such as bilberry *Vaccinium myrtillus*, wood-sorrel *Oxalis acetosella*, heath bedstraw *Galium saxatile* and hairy wood-rush *Luzula pilosa*. Species with a northern distribution, including chickweed wintergreen *Trientalis europaea*, twinflower *Linnaea borealis* and lesser twayblade *Listera cordata*, occur locally. There is usually a well-developed layer of pleurocarpous mosses and ferns. On lower slopes with flushing and on more base-rich substrates the flora is enriched by species that reflect an increased base-status, such as common dog-violet *Viola riviniana*, dog's mercury *Mercurialis perennis* and northern bedstraw *Galium boreale*.

In southern England juniper scrub may develop on a range of calcareous grassland types on thin chalk soils. More closed juniper stands with a rich scrub flora correspond to NVC type W21d *Crataegus monogyna – Hedera helix* scrub, *Viburnum lantana* sub-community, formerly called 'southern mixed scrub'. Where juniper is not dominant the scrub contains a rich assemblage of other shrubs, mainly of the family Rosaceae. Further north, at higher altitude on limestone, juniper scrub is often associated with

limestone pavements and calcareous cliffs and screes. Beyond the distribution range of many rosaceous shrubs and often in heavily grazed situations, such scrub may be relatively poor in specialist scrub species. In such circumstances the vegetation has affinities to the species-poor juniper scrub more usually found on acidic substrates.

Juniper stands occur in juxtaposition with a wide range of other vegetation types. Stands of juniper formerly occurred on lowland heathland, but as a result of burning and lack of management, only scattered specimens now survive at a few sites. In the Scottish Highlands there are stands that are transitional to H91C0 Caledonian forest and birch woodlands. Some southern stands are transitional to beech woodlands. In upland areas, specifically the Cairngorms, stands are still found in an apparently natural context at the upper limit of tree development and extend up above the woods into the dwarf-shrub heaths of the alpine zone. Elsewhere, stands occur that are transitional to calcareous grassland, heath, acidic grassland, rock outcrops, 8240 Limestone pavements, scree and cliffs. A range of juniper scrub types may occur within individual sites, and these may include both calcareous and acidic forms, altitudinal variations and transitions to a range of habitats.

Patches of *Juniperus – Oxalis* woodland within stands of W18 *Pinus sylvestris – Hylocomium splendens* woodland are referable to Annex I type H91C0 Caledonian forest. H15 dwarf juniper *Juniperus communis* ssp. *alpina* heath is referable to Annex I type 4060 Alpine and Boreal heaths.

**Table 1.1.1** Summary description of habitat H5130 and its relations with UK vegetation/habitat classifications

| Classification | Correspondence with Annex I type | Comments |
|---|---|---|
| **EU Interpretation Manual** | PAL.CLASS 31.88 | |
| **NVC** | W 19 *Juniperus communis* ssp. *Communis-Oxalis acetosella* woodland. Partial correspondence. W21 *Crataegus monogyna-Hedera helix* scrub. Partial correspondence. | For W19 and W21 this type includes only stands dominated by juniper. Stands of *Juniperus communis* ssp. *communis* on various other NVC grassland and heath types are also included. Stands of W19 within stands of W18 conform to Annex I type 91C0 Caledonian forest. Dwarf juniper heath (NVC type H15) is referable to Annex I type 4060 Alpine and Boreal heaths. |
| **BAP priority habitat type** | H5130 is not closely related to any one priority habitat but may be present on Lowland calcareous grassland, Upland calcareous grassland, Lowland heathland and Upland heathland. | *Juniperus communis* is a UK BAP Priority Species. |
| **CSM Reporting categories** | SACs: H5130<br>SSSIs: The habitat falls within the Broad-leaved, mixed and yew woodland reporting category. | H5130 is not recorded from Northern Ireland (where Juniper is present but not common) and there are no ASSIs for the habitat. |

# 2. Range [2.3]

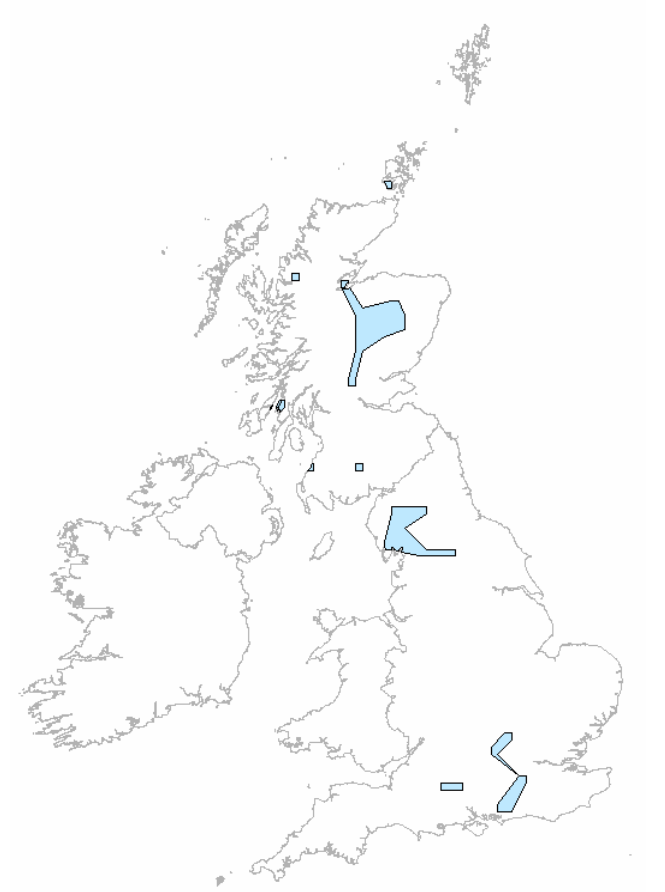
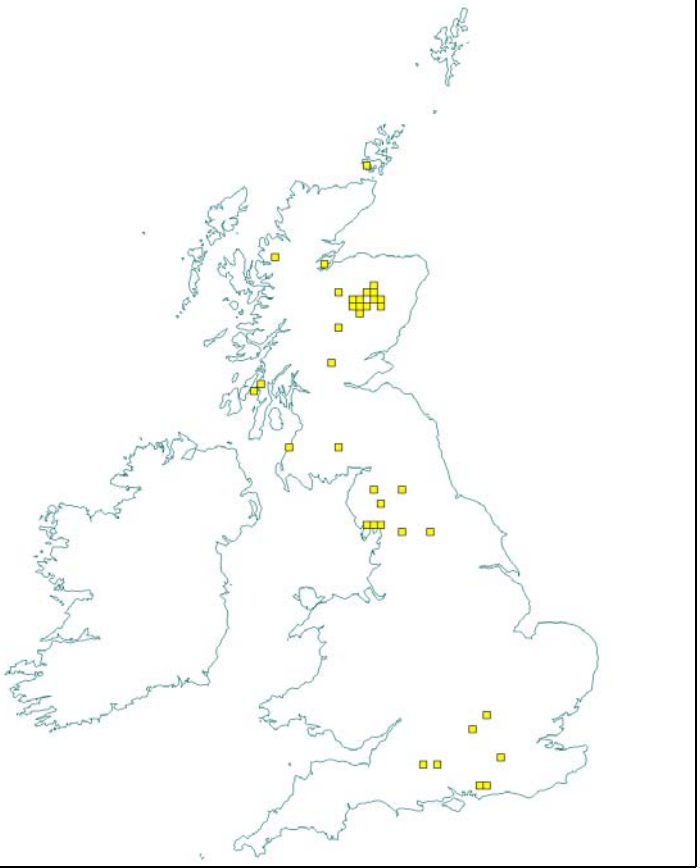
## 2.1 Current range

**Range surface area [2.3.1]:** **10,018 km²**
**Date calculated [2.3.2]:** **May 2007**
**Quality of data [2.3.3]:** **Good**

Maps 2.1.1 and 2.1.2 show the range and distribution of H5130 in the UK.

Juniper scrub has a scattered and patchy distribution across the UK. It occurs mainly in the eastern parts of northern Scotland, and more locally in the southern Uplands of Scotland, northern England and southern England. The habitat is not present in Northern Ireland, and occurs only as fragmentary examples in Wales.

Juniper is found on basic and acidic soils in a wide range of habitats, including chalk downland, heather moorland, oceanic heaths, rocky slopes and in *Betula*, *Quercus* and *Pinus* woods (Preston *et al.* 2002). *Juniperus communis* ssp. *communis* has an extensive but discontinuous distribution; it is present on the chalk downs of southern England, the north of England, the south of Scotland and the eastern Highlands. There are scattered occurrences in the rest of the UK (many of these thought to be introductions) but significant gaps in the distribution of Juniper - and therefore in the potential range of H5130 - occur in south-west England, the Midlands of England, the Central Belt of Scotland and Northern Ireland. There is potential for expansion of the habitat wherever suitable substrates exist in these gaps and particularly where heaths and calcareous grasslands remain.

| **Map 2.1.1** Habitat range map [1.1] for H5130 | **Map 2.1.2** Habitat distribution map [1.2] for H5130 |
|---|---|
|  |  |
| Range envelope shown in blue/grey shade in above map is a minimum convex polygon constructed using JNCC Alpha Shapes tool (see Technical note I for details of methodology). | Each yellow square represents a 10x10-km square of the National Grid and shows the known and/or predicted occurrence of this habitat.<br>10-km square count: 37 |

See Section 7.1 for map data sources

## 2.2 Trend in range since c.1994

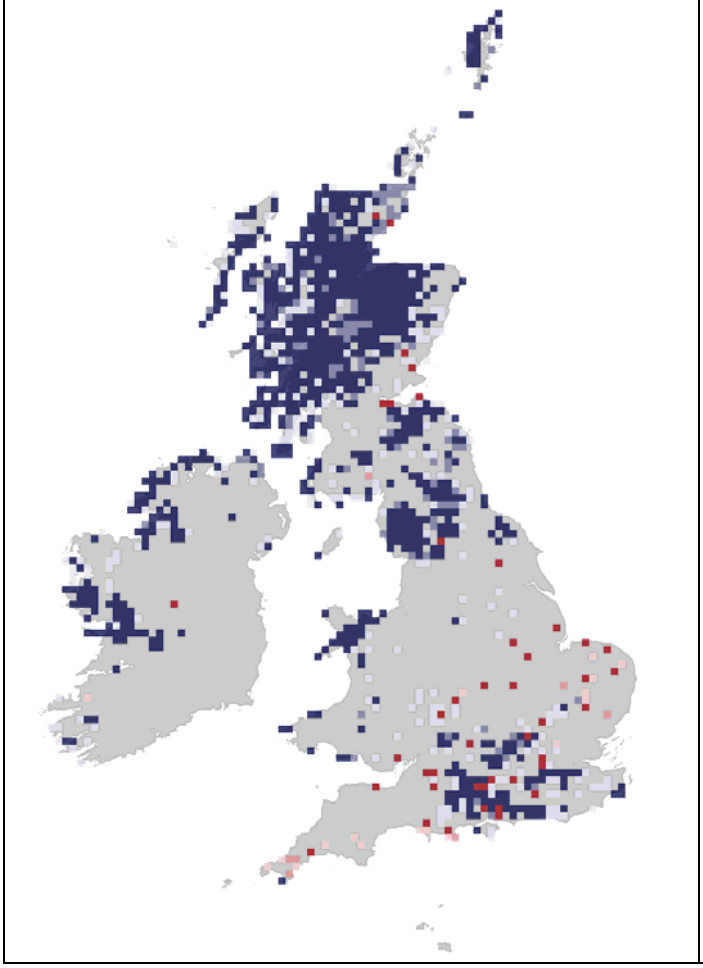
**Trend in range[2.3.4]:** **Unknown**
**Trend magnitude[2.3.5]:** **Not applicable**
**Trend period[2.3.6]:** **1994-2006**
**Reasons for reported trend[2.3.7]:** **Not applicable**

The range and trend in range of this habitat can be judged to some extent by the distribution of *Juniperus communis*, which is a defining species of this habitat on semi-natural heathlands and grasslands. Historic information prior to 1994 on distribution of *Juniperus communis* suggests that there has been a change in the distribution of this species (see Map 2.1.3).

Map 2.1.3 shows the changes in distribution of Juniper within the various patches of its range since the 1970s (based on Preston 2002). The map provides evidence of a retraction in some areas of Juniper distribution particularly around the margins of these patches and from juniper's more isolated occurrences, but also within the central lowlands of England. Ward (1973) found that Juniper was extinct in 46.6% of 1 km squares where it had previously been recorded in the south of England up to the Midlands. The Biodiversity Action Plan (BAP) Species Action Plan for *Juniperus communis* suggests that there has been a 60% decline in the number of occupied 10-km squares up to 1960, though the data are known to be incomplete (UK Biodiversity Group 1999).

More recently, it has been calculated that juniper has been lost from 31% of the 10-km squares in the UK from which it was recorded before 1970 (Ward 2004). Recent studies of Juniper throughout the UK have found a 23% loss from areas where it was formerly present in Scotland (Sullivan 2003), a 16% loss of colonies in north-east England (Clifton *et al.* 1997), and a 61% loss of sites in the South Downs (Ward 2004). These losses are suggestive of a general decline in juniper distribution that has continued since 1994. However, Map 2.1.3 indicates that juniper was present in 1987-1999 in virtually all the 10-km squares in Map 2.1.2, suggesting that decline in juniper occurrence since 1994 may not have been translated into a decline in the range of the habitat. The data are inconclusive, and it is concluded that trend in range since 1994 in unknown at present.

**Map 2.1.3** Decline in occurrence of *Juniperus communis* in 10-km squares from pre-1970 to 1999



**Key**
Blue: native records; red: alien records
Dark blue/red: 1987-1999
Mid blue/red: 1970-1986
Light blue/red: pre-1970

## 2.3 Favourable reference range

**Favourable reference range[2.5.1]: Unknown**

There is insufficient information to determine a favourable reference range estimate at this time.

## 2.4 Conclusions on range

**Conclusion[2.6.i]: Unknown**

There is evidence of a retraction in distribution of juniper since 1986, which is suggestive of a decline that continued after 1994. At the moment there are insufficient data to indicate whether the range of the habitat, as indicated by Maps 2.1.1 and 2.1.2, has declined since 1994.

# 3. Area [2.4]

## 3.1 Current area

**Total UK extent [2.4.1]: 17-30km$^2$**
**Date of estimation [2.4.2]: May 2007**
**Method [2.4.3]: 1 = only or mostly based on expert opinion**
**Quality of data [2.4.4]: Poor**

The surface area estimate was calculated within alpha hull software, using extent of occurrence as a proxy measure for range (see Map 2.1.1). The value of alpha was set at 25 km; the alpha was clipped to include inland areas only.

Table 3.1.1 provides information on the area of H5130 in the UK.

**Table 3.1.1** Area of H5130 in the UK

| | Area (ha) | Method [2.4.3] | Quality of data [2.4.4] |
|---|---|---|---|
| **England** | present | 1 | Poor |
| **Scotland** | 500-2,000 | 1 | Poor |
| **Wales** | present | 1 | Poor |
| **Northern Ireland** | not present | 1 | Poor |
| Total UK extent [2.4.1] | 1,700 -3,000 | 1 | Poor |

Data sources: John Hopkins, EN; David Horsfield, SNH. *Pers. Comm.*

Method used to estimate the habitat surface area: 1 = only or mostly based on expert opinion; 2 = based on remote sensing data; 3 = ground based survey. Only the most relevant class is given if more than one applies.
Quality of habitat surface area data: 'Good' e.g. based on extensive surveys; 'Moderate' e.g. based on partial data with some extrapolation; 'Poor' e.g. based on very incomplete data or on expert judgement.

The decline in the distribution of Juniper (Preston *et al.* 2002.) will inevitably reflect a decline in *Juniperus communis* formations on heaths or calcareous grasslands. The heaths or calcareous grasslands often remain where the Juniper population has become extinct. Sullivan (2003) recorded a 23% decline and estimated that Juniper will be lost from half the 10 x 10 km squares where it was previously known in Scotland in the forseeable future. Clifton *et al.* (1997) recorded a 30% decline in populations in north-east England. Ward (2004) recorded extinctions and serious declines in Juniper populations throughout the UK, including a 69% decline in numbers in the South Downs. Many populations of Juniper are failing to replace themselves and most are small, ageing or moribund (MacDonald 2000). It is considered that the decline in the area occupied by stands of Juniper exceeds the decline in the range of the species.

There is scope for an increase in the area of this habitat within its recent historical range (assuming this to be more or less equivalent to the historical distribution of Juniper in Preston (2002) but excluding the north-west seaboard of Scotland, the Western Isles, Orkney and Shetland). There is also scope for expansion on suitable substrates elsewhere, particularly where the heath or grassland element of the

habitat still persists and only Juniper is missing. Further research is needed to establish the minimum dynamic area required to ensure that a stable mosaic of stands can be maintained covering the full range of juniper age and associated typical species assemblages.

However, any expansion of this habitat onto suitable heaths or calcareous grasslands would be likely to be at the expense of H6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) or H4030 European dry heaths, as well as at the expense of the Lowland and Upland Calcareous Grassland and Lowland and Upland Heathland BAP Priority Habitats. Conflict between the competing requirements for expansion of the different habitats could best be resolved by focussing expansion of this habitat onto areas of heath or calcareous grassland where Juniper is known to have been present in the past.

## 3.2 Trend in area since c.1994

**Trend in area[2.4.5]:** **Decreasing**
**Trend magnitude[2.4.6]:** **Unknown**
**Trend period[2.4.7]:** **1970-2006**
**Reasons for reported trend[2.4.8]:** **Unknown**

## 3.3 Favourable reference area

**Favourable reference area[2.5.2]:** **30km$^2$**

Section 3.2.1.3 of 'Assessing Conservation Status: UK Approach' sets out how favourable reference range estimates for habitats have been determined in the UK. Based on this approach, and in the absence of robust area measurements for 1994, the upper estimate of the total UK extent has been set as the favourable reference area. However, because this estimate is based on expert judgement, the value is reported with low confidence.

## 3.4 Conclusions on area covered by habitat

**Conclusion[2.6.ii]:** **Unfavourable – Inadequate and deteriorating**

The loss of area occupied by Juniper over the past 50 years or so is considered to be continuing and to have exceeded the contraction in range. As stands of Juniper scrub degenerate into scattered bushes, the area which can be considered to represent H5130 will decline more rapidly than the area of habitat which contains Juniper bushes. Losses cannot be quantified and have been judged to be, at best, Unfavourable – Inadequate and deteriorating. There remains the possibility that the judgement should be Unfavourable – Bad and deteriorating but for this the decline since 1994 would have to have been greater than 10% (or alternatively 1% per year) and it is not clear that this is the case. The viability of the area now, and in 1994, are not known.

# 4. Specific structures and functions **(including typical species)**

## 4.1 Main pressures [2.4.10]

**140 Grazing**
**141 Abandonment of pastoral systems**
**950 Biocenotic evolution**
**702 air pollution**
**162 Artificial planting**
**620 Outdoor sports and leisure activities**
**948 Fire**

- Lack of regeneration

This is seen as the main threat to the habitat. Juniper seed production declines with increasing age of the bush and with latitude (Ward, 1982, Garcia *et al.* 2000). However, the life span of Juniper may also be

related to latitude, with slow-growing bushes at higher latitudes living longer than those in the South of England.

Juniper regeneration can be infrequent and episodic, resulting in populations with few age classes, which suggests that the establishment of many stands was related to past events such as the decline in rabbit grazing following myxomatosis 1954-5 (Ward 1990). Populations with wide age ranges tend to be associated with conditions providing regular opportunities for establishment, such as continual exposure of bare soil on steep slopes (Clifton *et al.* 1997; Sullivan 2003; Ward 1981).

- Over-grazing and under-grazing

There is still a need to organise better the timing and intensity of grazing. Juniper is unable to tolerate heavy shading and cannot germinate and grow in dense, ungrazed vegetation. It requires bare ground or a short open sward in order to establish itself (Clifton *et al*.1997). However, it is also intolerant of heavy grazing (Ward, 1981). Practical management techniques for encouraging the establishment of Juniper include grazing, burning, soil disturbance, weeding and tree shelters. (Barrett 1997; Broome 2003; McBride 1998; Ward 1981). The difficulty of achieving the ideal grazing regime to allow germination and establishment is such that Barrett (1997) recommends propagating material in nurseries for planting out. Broome (2003) found vegetative propagation to be more reliable and rapid than propagation from seed.

- Forestry

- Fragmentation

Ward (1973) considered that sites with populations of at least 100 bushes are ecologically more valuable in terms of maintaining their invertebrate fauna and associated vegetation communities.

- Air pollution

Based on an assessment of the exceedence of relevant critical loads (see Technical note III), air pollution is considered to be a potentially significant pressure to the structure and function of this habitat.

- Burning

Juniper has been found to be excluded from areas that had been repeatedly burnt. (Barrett 1997; Sullivan 2003). Otherwise, although locally damaging, burning does not appear to be a major threat to the habitat. Sullivan (2003) and Clifton *et al*.(1997) found that relatively few individuals of Juniper had been lost as a direct result of burning. Burning may create a long-lasting seed bed which remains open for longer than after simple disturbance.

Small, isolated Juniper populations might be expected to have low levels of genetic variation but this is not the case and Juniper decline is not likely to be caused by genetic factors (Van der Merwe *et al.* 2000, Gerard *et al.* 2004).

## 4.2 Current condition

### 4.2.1 Common Standards Monitoring (CSM) condition assessments

Condition assessments based on CSM (see www.jncc.gov.uk/page-2199) provide a means to assess the structure and functioning of H5130 in the UK. The following attributes were examined for all CSM assessments relevant to the habitat:

- Feature extent.
- Vegetation composition — cover.
- Vegetation structure — density, age structure and % fruiting.
- Vegetation structure — indicators of browsing.

- Physical structure — indication of disturbance.

**Special Area of Conservation (SAC) condition assessments**

Table 4.2.1 and Map 4.2.1 summarise the CSM condition assessments for UK SACs supporting habitat H5130. These data were collated in January 2007. The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the map are given in section 7.2). The combined assessments show that of the SACs assessed:

- 91% of the area and 69% of the number of assessments was unfavourable; and
- at least 60% of the total UK habitat area was in unfavourable condition.

**Site of Special Scientific Interest (SSSI)/Area of Special Scientific Interest (ASSI) condition assessments**

Table 4.2.2 and Maps 4.2.2 and 4.2.3 summarise the CSM condition assessments that were judged to be either strongly or weakly indicative of the condition of the Annex I habitat on SSSI/ASSIs (see Technical note II for details of methodology behind this). These data were collated in January 2007. The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the maps are given in Section 7.2). The combined condition assessments show that of the SSSI/ASSI assessments considered:

- 75% of strongly indicative assessments were unfavourable. All assessments were strongly indicative.

**Table 4.2.1** CSM condition assessment results for UK SACs supporting H5130. See notes below table for details. Information on the coverage of these results is given in section 7.2

| Condition | Condition sub-categories | Area (ha) | Number of site features |
|---|---|---|---|
| **Unfavourable** | Declining | 301 | 3 |
| | No change | 02 | 1 |
| | Unclassified | | |
| | Recovering | 722 | 7 |
| | Total | 1,025 | 11 |
| | **% of all assessments** | 91% | 69% |
| | **% of total UK resource** | 60% | unknown |
| **Favourable** | Maintained | 59 | 4 |
| | Recovered | | |
| | Unclassified | 48 | 1 |
| | Total | 107 | 5 |
| | **% of all assessments** | 9% | 31% |
| | **% of total UK resource** | 6% | unknown |

Notes

Data on features that have been partly-destroyed have been excluded from this table because they are not relevant to the consideration of present condition.

The data included are from CSM assessments carried out between April 1998 and December 2006. NB: these include additional and some up-date data form those used in the six year report produced by JNCC. (Williams, J.M., ed. 2006. *Common Standards Monitoring for Designated Sites: First Six Year Report*. Peterborough, JNCC).

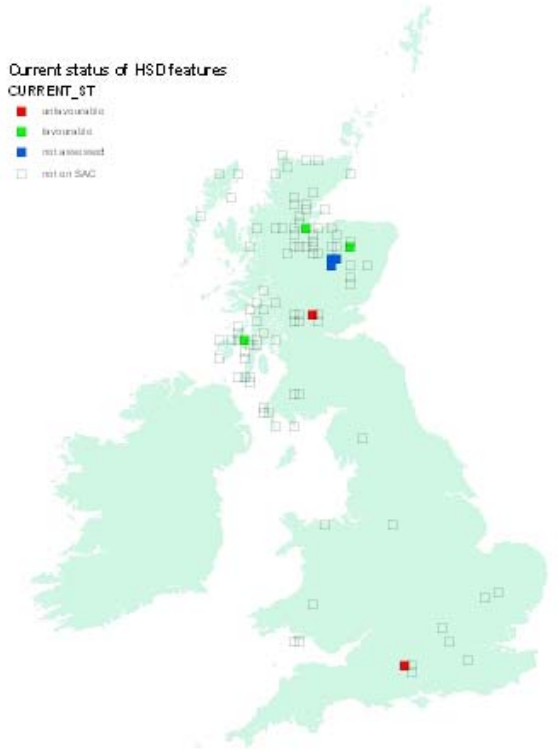
Only assessments made for qualifying interest features on SAC have been included in this analysis.

Area figures for CSM assessments have been calculated using the data presented on the standard Natura 2000 data forms submitted to the EU.

**Table 4.2.2** CSM condition assessment results for UK SSSI/ASSIs that were judged to be either strongly or weakly indicative of the condition of H5130 on SSSI/ASSIs. See notes below table and Technical note II for further details

| Condition | Condition sub-categories | Number of assessments |
|---|---|---|
| **Unfavourable** | Declining | 2 |
| | No change | 1 |
| | Unclassified | |
| | Recovering | 1 |
| | **Total** | **6** |
| | **% of all assessments** | **75%** |
| **Favourable** | Maintained | 2 |
| | Recovered | |
| | Unclassified | |
| | **Total** | **2** |
| | **% of all assessments** | **25%** |

Data on features that have been partly-destroyed have been excluded from this table because they are not relevant to the consideration of present condition.

| **Current Condition of H5130 based on CSM condition assessments** (See Sections 4.2 and 7.2 for further information) | | |
|---|---|---|
| **Map 4.2.1** SAC assessments | **Map 4.2.2** Assessments strongly indicative of the condition on SSSI/ASSIs | **Map 4.2.3** Assessments weakly indicative of the condition on SSSI/ASSIs |
|  |  | Not applicable |
| Key<br>Red = unfavourable, i.e. the square contains at least one SAC where this habitat feature is present and has been judged to be unfavourable<br>Green = favourable, i.e. the square contains at least one SAC where this habitat feature is present and has been assessed as favourable but there are no unfavourable SAC features<br>Blue = SAC not assessed, i.e. the square contains at least one SAC supporting this habitat feature but no assessment has been reported<br>Transparent = SAC feature not present, i.e. the square does not contain any SAC features of this habitat type | Key*<br>Green – 80 – 100% of assessed features on 10-km square are favourable<br>Yellow - 50 – 80% of assessed features on 10-km square are favourable<br>Orange - 20 – 50% of assessed features on 10-km square are favourable<br>Red - 0 – 20% of assessed features on 10-km square are favourable<br>*This is the same key as was used for JNCC CSM Report 2006 | |

## 4.3 Typical species

**Typical species[2.5.3]: None**
**Typical species assessment[2.5.4]: Not applicable**
Typical species other than the eponymous Juniper (see sections 2 and 3) have not been considered.

## 4.4 Conclusions on specific structures and functions (including typical species)

**Conclusion[2.6.iii]: Unfavourable – Bad but improving**
The EC Guidance states that where "more than 25% of the area of the habitat is unfavourable as regards its specific structures and functions", the conclusion should be Unfavourable – Bad. In the UK this was generally taken to mean that more than 25% of the habitat area is in unfavourable condition.

The CSM SAC data show that 91% of the area assessed and 69% of the sites assessed are in unfavourable condition; the unfavourable SAC areas alone are thought to account for 60% of the total UK resource. For SSSI/ASSIs, 75% of features are unfavourable. It is concluded that the overall assessment for structure and function of this habitat is Unfavourable – Bad.

73% of the area and 75% of site features on SACs are predicted to reach favourable status in the foreseeable future. The prediction of the future condition of the Annex 1 habitat, based on CSM SSSI/ASSI assessments, is similar, in that 63% of the assessments are predicted to reach favourable condition in the foreseeable future. Nearly all the largest and most important sites are now under conservation management. Therefore, the trend has tentatively been assessed as improving.

# 5. Future prospects

## 5.1 Main factors affecting the habitat

### 5.1.1 Conservation measures

Virtually all sites with large numbers of Juniper bushes are under some form of conservation management. Juniper is covered by a national Species Action Plan under the UK BAP (see www.ukbap.org.uk), with targets to:

- Maintain the current range of juniper.
- Maintain the overall population size of juniper.
- Achieve natural regeneration of juniper populations at sites under direct conservation management.
- Maintain, or re-establish, populations at sites not under direct conservation management.
- Restore representative tree-line juniper populations.

### 5.1.2 Main future threats[2.4.11]

**140 Grazing**
**141 Abandonment of pastoral systems**
**950 Biocenotic evolution**
**702 air pollution**
**162 Artificial planting**
**620 Outdoor sports and leisure activities**
**948 Fire**

The most obvious major future threats to H5130 are listed below, several of which are referred to in section 4.1.

- Lack of regeneration.
- Over-grazing and under-grazing.
- Fragmentation.

- Air pollution: Based on an assessment of the exceedence of relevant critical loads (see Technical note III), air pollution is considered to be a potentially significant threat to the future condition of this habitat.
- Burning.
- Climate change: Based on the literature review (see Technical note IV) climate change is not considered a potentially significant threat to the future condition of this habitat.

## 5.2 Future condition (as regards range, area covered and specific structures and functions)

### 5.2.1 CSM condition assessments

The CSM condition assessments reported in sections 4.2.1-2 provide a basis to predict the potential future condition of H5130 in the UK. This involved treating all assessments currently identified as either favourable or unfavourable recovering as future-favourable: remaining categories were treated as future-unfavourable – see Table 5.2.1. There are a number of caveats to this approach, which are set out beneath this table.

### SAC condition assessments

Table 5.2.1 and Map 5.2.1 summarise the predicted potential future condition of H5130 on UK SACs. This is based on the approach described above. The maps give an impression of the overall spread of where future-unfavourable and future-favourable sites are predicted to occur (summary statistics for the map are given in Section 7.2). The combined assessments show that of the SACs assessed:

- 73% of the area and 75% of the number of assessments fall within the future-favourable category; and
- at least 48% of the total UK habitat area falls within the future-favourable category.

**Table 5.2.1** Predicted future condition of UK SACs supporting H5130 based on current Common Standards Monitoring condition assessments. See notes below table for details. Information on the coverage of these results is given in section 7.2

| Future condition | Present condition | Area (ha) | Number of site features |
|---|---|---|---|
| **Future-unfavourable** | Unfavourable declining | 301 | 3 |
| | Unfavourable no change | 02 | 1 |
| | Unfavourable unclassified | | |
| | Total | 304 | 4 |
| | **% of assessments** | **27%** | **25%** |
| | **% of total UK extent** | **18%** | **Unknown** |
| **Future-favourable** | Favourable maintained | 59 | 4 |
| | Favourable recovered | | |
| | Unfavourable recovering | 722 | 7 |
| | Favourable unclassified | 48 | 1 |
| | Total | 829 | 12 |
| | **% of assessments** | **73%** | **75%** |
| | **% of total extent** | **48%** | **Unknown** |

Note that the scenario presented above is based on the same information as used to construct Table 4.2.1. It is based on the following premises:
(i) the unfavourable-recovering condition assessments will at some point in the future become favourable;
(ii) all unfavourable-unclassified sites will remain unfavourable, which is probably overly pessimistic;
(iii) sympathetic management will be sustained on sites already classified as favourable and these will not be seriously damaged by any unforeseen events.
**IMPORTANT NOTE:** We do not have information on the timescale of the predicted recovery, which may be influenced by many past, natural and human related factors. A sustained, sympathetic management regime is more likely to result in 'favourable' condition being attained.

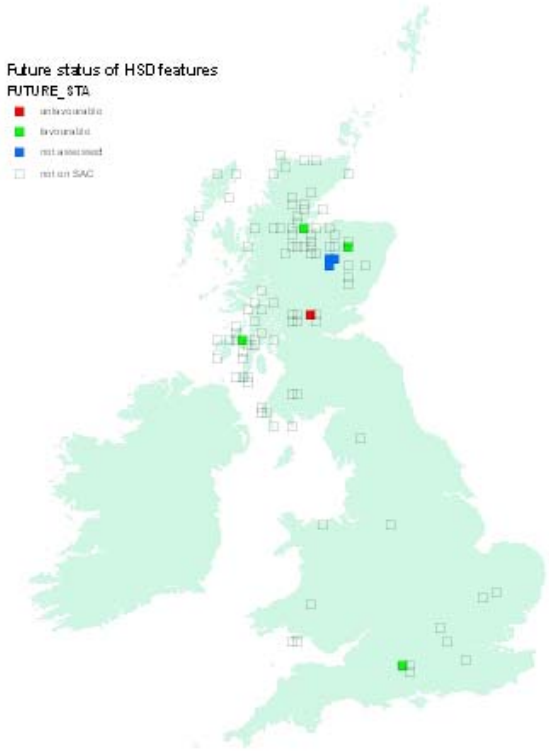
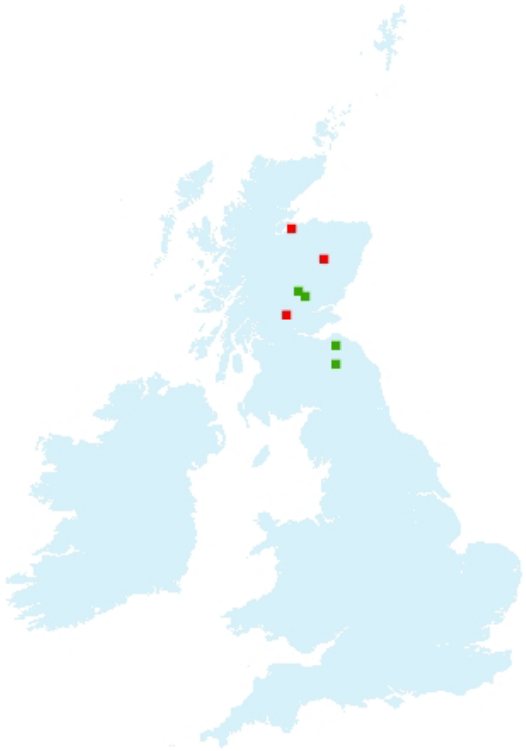
**Table 5.2.2** Predicted future condition of H5130 on SSSI/ASSIs based on CSM assessments that were judged to be either strongly or weakly indicative of the condition. See notes below table and Technical note II for further details

| Future condition | Present condition | Number of assessments | |
|---|---|---|---|
| | | **Strongly indicative assessments (Category 1)** | **Weakly indicative assessments (Category 2)** |
| **Future-unfavourable** | Unfavourable declining | 2 | |
| | Unfavourable no change | 1 | |
| | Unfavourable unclassified | | |
| | Total | 3 | |
| | **% of assessments** | **38%** | **%** |
| **Future-favourable** | Favourable maintained | 2 | |
| | Favourable recovered | | |
| | Unfavourable recovering | 3 | |
| | Favourable unclassified | | |
| | Total | 5 | |
| | **% of assessments** | **63%** | **%** |

**SSSI/ASSI condition assessments**

Table 5.2.2 and Maps 5.2.2 and 5.2.3 summarise the predicted potential future condition of H5130 on UK SSSI/ASSIs. This is based on the approach described above and utilises condition assessments that were judged to be either strongly or weakly indicative of the condition of the Annex I habitat on SSSI/ASSIs (see Technical note II for details of methodology behind this). The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the maps are given in Section 7.2). The combined condition assessments show that of the SSSI/ASSI assessments considered:

- 63% of strongly indicative assessments fall within the future-favourable category.

<table>
<tr><td colspan="3">Predicted Future Condition of H5130 based on CSM condition assessments (See Sections 5.2 and 7.2 for further information on these maps)</td></tr>
<tr><td>Map 5.2.1 SAC assessments</td><td>Map 5.2.2 Assessments strongly indicative of the condition on SSSI/ASSIs</td><td>Map 5.2.3 Assessments weakly indicative of the condition on SSSI/ASSIs</td></tr>
<tr><td> 
</td><td>  </td><td>Not applicable</td></tr>
<tr><td>Key<br>Red = future-unfavourable, i.e. the square contains one or more SACs where this habitat feature is present and has been predicted to be future-unfavourable<br>Green = future-favourable, i.e. the square contains at least one SAC where this habitat feature is present and has been predicted to be future-favourable<br>Blue = SAC not assessed, i.e. the square contains at least one SAC supporting this habitat feature but no assessment has been reported<br>Transparent = SAC feature not present, i.e. the square does not contain any SAC features of this habitat type</td><td colspan="2">Key*<br>Green – 80 – 100% of assessed features on 10-km square are favourable<br>Yellow - 50 – 80% of assessed features on 10-km square are favourable<br>Orange - 20 – 50% of assessed features on 10-km square are favourable<br>Red - 0 – 20% of assessed features on 10-km square are favourable<br>*This is the same key as was used for JNCC CSM Report 2006</td></tr>
</table>

## 5.3 Conclusions on future prospects (as regards range, area covered and specific structures and functions)

**Conclusion[2.6.iv]: Unfavourable – Inadequate**

The EC Guidance states that where habitat prospects are intermediate between "good with no significant impacts from threats expected and long-term viability assured" and "bad with severe impacts from threats expected and long-term viability not assured", the judgement should be Unfavourable – Inadequate. In the UK, this was generally taken to mean that range and/or area are stable or decreasing, and between 75-95% of the habitat area is likely to be in favourable condition in 12-15 years.

73% of the area and 75% of site features on SACs are predicted to reach favourable status in the foreseeable future. The prediction of the future condition of the Annex 1 habitat, based on CSM SSSI/ASSI assessments, is similar, in that 63% of the assessments are predicted to reach favourable condition in the foreseeable future. Sullivan (2003) estimated that Juniper will, in the future, be lost from half the 100 km squares where it was previously known in Scotland. However nearly all the largest and most important sites are now under conservation management and thus seem unlikely to be lost completely. It is not possible to quantify the predicted changes (beyond the CSM results, which do not have a direct bearing on range or area in the short term), but balancing what is known, future prospects for the habitat are judged to be Unfavourable – Inadequate. Given progress already made and some additional recovery once further conservation measures are put into place, the expectation is that somewhat less than 25% of the habitat will be in unfavourable condition after the next 10-15 years.

# 6. Overall conclusions and judgements on conservation status

**Overall conclusion[2.6]: Unfavourable – Bad but improving**

On the basis of Structure and Function, the overall conclusion for this habitat feature is Unfavourable – Bad.

**Table 6.1** Summary of overall conclusions and judgements

| Parameter | Judgement | Grounds for Judgement | Confidence in judgement* |
|---|---|---|---|
| **Range** | Unknown | Insufficient information. | 2 |
| **Area covered by habitat type within range** | Unfavourable – Inadequate and deteriorating | Current extent is less than the favourable reference area, but not by more than 10%. | 1 |
| **Specific structures and functions (including typical species)** | Unfavourable – Bad but improving | More than 25% of the habitat area is considered to be unfavourable as regards its specific structures and functions.<br><br>Significantly more of the resource in unfavourable condition is improving than declining. | 2 |
| **Future prospects (as regards range, area covered and specific structures and functions)** | Unfavourable – Inadequate | Habitat prospects considered to be intermediate between "good with no significant impacts from threats expected and long-term viability assured" and "bad with severe impacts from threats expected and long-term viability not assured. | 2 |
| **Overall assessment of conservation status** | Unfavourable – Bad but improving | The judgement is based on at least one Unfavourable-Bad judgement. | 1 |

Key to confidence in judgement: 1 = High; 2 = Medium; 3 = Low

# 7. Annexed material (including information sources used 2.2)

## 7.1 References

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WARD, L.K. 2004. Juniperus communnis L. Species dossier. Plantlife International. http://www.plantlife.org.uk/uk/plantlife-saving-species-under-our-care-juniperus-communis.htm

**Map data sources**

JNCC International Designations Database. Joint Nature Conservation Committee.

## 7.2. Further information on CSM data as presented in Sections 4.2 and 5.2

**Table 7.2.1** Summary of the coverage of the data shown in Tables 4.2.1 and 5.2.1

| Data | Value |
|---|---|
| Number of SACs supporting feature (a) | 17 |
| Number of SACs with CSM assessments (b) | 16 |
| % of SACs assessed (b/a) | 94 |
| Extent of feature in the UK – hectares (c) | 1,709 |
| Extent of feature on SACs – hectares (d) | 1,709 |
| Extent of features assessed – hectares (e) | 1,133 |
| % of total UK hectarage on SACs (d/c) | 100 |
| % of SAC total hectarage that has been assessed (e/d) | 66 |
| % of total UK hectarage that has been assessed (e/c) | 66 |

**Table 7.2.2** Summary of grid square map data shown in Maps 4.2.1-3 and 5.2.1-3

| Status | Number of squares | Proportion of all squares |
|---|---|---|
| Current – Unfavourable (red) | 2 | 2% |
| Current – Favourable (green) | 3 | 3% |
| On SAC but not assessed (blue) | 3 | 3% |
| Not on SAC (transparent) | 92 | 92% |
| Total Number of 10-km squares (any colour) | 100 | |
| Future – Unfavourable (red) | 1 | 1% |
| Future – Favourable (green) | 4 | 4% |