

Environment & Heritage Service

NORTHERN IRELAND SPECIES ACTION PLAN

JUNIPER

April 2008

Northern Ireland Species Action Plan
Juniper *Juniperus communis*
April 2008

1 Current Status

- 1.1** Juniper *Juniperus communis* (L.) is a coniferous plant of the Cupressaceae family. It has been separated into three subspecies, two of which, - subsp. *communis* and subsp. *nana*; occur in Northern Ireland. Subsp. *communis* is the commonest subspecies and is a spreading shrub or tree growing to 16m with leaves up to 20mm tapering to a sharp point. Subsp. *nana* is a dwarf procumbent plant with shorter leaves, 4-12mm and blunt at the tip (Stace, 1997). The twigs spread in 3 dimensions, and are not flattened in one plane as in other conifers. Both subspecies are in flower May to July (Clapham *et al.*, 1987). The plant is slow-growing and long-lived, up to 200 years.
- 1.2** In the UK, *J. communis* is a native species occurring on well-lit, well-drained soils. In the north of its range, the species favours cold sites with high precipitation, on acid soils such as moorland, oceanic maritime heaths and rocky slopes and is found as an under-storey shrub in highland birch and pine woods. In the north, it also forms its own identifiable community dominated by the species, which is recognised under the National Vegetation Classification (NVC) (Rodwell, 1991). In the south of England, it is found on open sites on chalk downland (Mabey, 1996).
- 1.3** *J. communis* is found in the Arctic and North Temperate zones, south to the mountains of North Africa and also in the Himalayas, North California and Pennsylvania (Clapham *et al.*, 1987).
- 1.4** *J. communis* was first recorded in Northern Ireland as *J. vulgaris* from the Mourne, County Down in 1744 (Harris, 1744), although it is thought the plant may well have been *J. sibirica* (*J. nana*) (Stewart *et al.*, 1938).
- 1.5** In Northern Ireland the 1987-1999 records for *J. communis* aggregate show it currently occurring in 15 10x10km squares (Preston *et al.*, 2002). It occurs on cliff faces along the north coast and on limestone pavement and outcrops in County Fermanagh and also in east County Down. The species has shown a sharp decline in distribution on the north coast of Counties Londonderry and Antrim and also in the Mourne. In contrast, it appears to have increased in County Fermanagh (Preston *et al.*, 2002). Whether these are real changes or represent changes in recording effort is unclear.

- 1.6 Extant Irish juniper is characterized by a largely homogeneous gene pool, with two geographically widespread haplotypes accounting for approximately 90% of plants studied. The current-day distribution of genetic variation in Ireland has been shaped by the effects of the penultimate glaciation, rather than the most recent glacial maximum or by anthropogenic factors (Preston *et al.*, 2006).
- 1.7 Some regions harbour rare, geographically localized haplotypes, particularly the Mourne Mountains, which may prioritise conservation actions for this population, but may constrain the use of replanting as a management option (Preston *et al.*, 2006).
- 1.8 *J. communis* is listed as a Priority Species under the Northern Ireland Biodiversity Strategy. It is also included in the list of UK Priority Species.
- 1.9 *J. communis* is not specially protected under the *Wildlife (Northern Ireland) Order 1985*.

2 Current Factors Causing Loss or Decline

- 2.1 Burning of vegetation has been listed as one of the main factors responsible for the decline and local extinction of juniper in the UK (JNCC, 1999). The impact of burning in Northern Ireland is not known.
- 2.2 *J. communis* seems to thrive best where there are cycles of land use, such as periods of grazing, which produce areas of well-lit bare ground with short turf, ideal for seed germination, followed by periods of abandonment, allowing the slow-growing seedlings to mature un-grazed. Rabbits can be a threat to establishment, as suggested at Porton Down, in southern England, where much of a large *J. communis* population dates from the period in the 1950's that coincided with the dramatic decline in the rabbit population due to myxomatosis (Mabey, 1996). Over grazing by rabbit and livestock should therefore be considered as a potential threat. Many surviving plants in Northern Ireland are now found only on cliff ledges isolated from grazing pressure, as at Binevenagh, County Londonderry and Rathlin Island, County Antrim.
- 2.3 The development of patches of scrub into woodland e.g. hazel *Corylus avellana*, or the establishment of forestry plantations may have contributed to the decline of *J. communis* in some areas. Shading appears to negatively affect germination in at least some populations.
- 2.4 *J. communis* is a very slow-growing species and the fruits take 2 years to mature. Furthermore, the seed coats require rotting or partial digestion before the seeds will

germinate. Seeds that have passed through a bird's gut and have then been chilled, can germinate at once, but if they simply drop to the ground, the thick wooden seed coat takes 1-2 years to rot sufficiently for germination to take place. Some or all these factors may have contributed to the decline of *J. communis* in some areas. (Thomas, 2000)

- 2.5 *J. communis* is dioecious (has separate male and female plants) and where surviving populations of female only specimens are widely separated from male plants, no seed is produced. Smaller isolated colonies are more vulnerable to extinction through chance events, natural fluctuation in population size and genetic decline. Habitat fragmentation is also a contributory factor to decline.
- 2.6 Human disturbance is not a major problem to the surviving plants and colonies as most are out of reach on steep cliff faces.
- 2.7 Predictions of temperature rise as a result of climate change have been modelled by the MONARCH project (Harrison *et al.*, 2001). These suggest a smaller impact in Ireland than in Great Britain but still may result, or have resulted in changes in species composition and diversity.

3 Current Action

- 3.1 Under Article 28 of the *Environment (Northern Ireland) Order 2002*, Areas of Special Scientific Interest (ASSIs) are identified and declared by the Department of the Environment (DOE) through the Environment and Heritage Service (EHS). The Environment (NI) Order 2002 strengthened existing protection of ASSIs by introducing a mechanism for the positive management of these sites recognising the importance of working in partnership with owners and occupiers and encouraging positive management of these sites (MOSS). ASSIs supporting the species include Binevenagh, County Londonderry, Rathlin Island Coast, County Antrim, Monawilkin and Cuilcagh, County Fermanagh and the Eastern Moumes in County Down. Other plants and/or populations occur on National Nature Reserves such as Crossmurrin, County Fermanagh. Rathlin Island Coast ASSI includes part of Kebble NNR, Rathlin Island, County Antrim.
- 3.2 In August 2002 the government published the Northern Ireland Biodiversity Strategy which adopted the recommendations provided by the Northern Ireland Biodiversity Group in October 2000. As part of this process a revised list of Northern Ireland priority species was published in 2004. This list includes *J. communis*.
- 3.3 Regional Planning and Transportation division within DRD is responsible for the implementation of the *Regional Development Strategy (RDS)* for Northern Ireland 2025,

which provides an overarching framework for competitive and sustainable development in Northern Ireland (DRD 2001). Operational policies to give effect to the Strategic Planning Guidelines of the RDS are contained in Planning Policy Statements (PPSs).

- 3.4** Planning Service assesses the impact of development proposals on wildlife using policies in *Planning and Policy Statement 2 – Planning and Nature Conservation* (currently under review). EHS is a statutory consultee to Planning Service and provides advice on site specific impacts both within designated sites and in the wider countryside, when requested to do so. Impacts of development proposals are assessed and the proposals amended or mitigated to ensure continued sustainable development in the countryside.
- 3.5** Site protection policies are included in Development Plans. These include the identification of Sites of Local Nature Conservation Importance (SLNCIs). Planning Service is currently considering which SLNCIs will be formally identified in Development Plans. Where such sites are confirmed in adopted plans, specific planning policies will be applied to development proposals on those sites.
- 3.6** The development of Local Biodiversity Action Plans (LBAPs) based on District Council areas and/or discrete landscape areas, and the appointment of Local Biodiversity Officers will help to build on the SLNCI network and encourage, co-ordinate and inform local biodiversity action.
- 3.7** The Department of Agriculture and Rural Development (DARD) through its Countryside Management Branch (CMB) has developed a series of Agri-environment schemes including the ESA scheme and the Countryside Management Scheme (CMS). Further revisions to both the ESA and CMS have recently been approved under the current Northern Ireland Rural Development Programme (2000 - 2006). Their objectives are to protect and enhance semi-natural habitats and species by encouraging more sensitive management practices. Both these schemes have similar management provisions, are voluntary and apply to the whole farm. These schemes provide mechanisms for delivering some of the targets in Action Plans for species and habitats and are currently targeting areas of as little as 0.1 ha of semi-natural habitat in order to maintain and improve their present conservation value. Around 230,000ha of farm land, approaching one quarter of total agricultural land in Northern Ireland, is currently in agri-environment schemes. In the case of *J. communis*, grazing is of particular concern.
- 3.8** The designation of ESAs started in 1988 and today there are 5 ESAs in Northern Ireland. DARD has determined a number of priority habitats, which, if they occur on the farm, must be brought under agreement and managed according to relevant prescriptions determined by DARD. The most relevant ESAs are Antrim Coasts Glens and Rathlin Island and West Fermanagh and Eme Lakeland.

- 3.9** The Countryside Management Scheme (CMS), launched in 1999, was developed with the primary aim to maintain and enhance biodiversity and is open to all farmers and landowners outside ESAs. Where funding is limited, entry into the scheme is competitive and based on who can offer the greatest environmental benefits.
- 3.10** A new agri-environment scheme, called the NICMS (Northern Ireland Countryside Management Scheme), will be launched in late Spring/early summer 2008. The NICMS is an integral part of the Northern Ireland Rural Development Programme 2007 – 2013 (NIRDP). This programme is part-financed by the European Agricultural Fund for Rural Development (EAFRD) with co-funding provided by the Department of Agriculture and Rural Development (DARD). The NICMS will play an important role in delivery of Axis 2 of the NIRDP - Improving the environment and the countryside through land management.
- 3.11** The NICMS aims to make a major contribution to the conservation action required for many Northern Ireland priority habitats and species. The habitat management plans in NICMS specify how farmers and land managers can best contribute to the conservation of these priority habitats and species.
- 3.12** Other relevant information is gathered through specialist biological recording groups, NGOs, universities and other government bodies. Biological records are currently stored in Museum and Galleries of Northern Ireland (MAGNI) at the Centre for Environmental Data and Recording (CEDaR). CEDaR was established in 1995 in partnership with EHS, MAGNI and the biological recording community. There are currently over 1.4 million records held by CEDaR and there are plans under way to make these records more accessible through the internet. This will be achieved through the National Biodiversity Network - a union of organisations throughout the UK working together to create an informal network of accessible biological data for biodiversity information. The Botanical Society of the British Isles (BSBI) hold the dataset relevant to the most recently published Atlas of The British and Irish Flora (Preston 2002) which does not necessarily match exactly with that held by CEDaR. Further records have been gathered by *Quercus* for a current research project (see 3.11).

4 Action Plan Targets

- 4.1** Maintain current population of *J. communis* at 22 sites.

- 4.2 Maintain current range at 12 10x10km squares.
- 4.3 By 2015, increase the number of sites supporting *J. communis* to 25.
- 4.4 By 2015, increase range to 15 10x10km squares.

5 Proposed Action with Lead Agencies

5.1 Policy and Legislation

- 5.1.1 By 2008, assess the occurrence of the plant in ASSIs and NNRs and if necessary notify further sites to ensure adequate geographical coverage of protected sites.
(ACTION: EHS)
- 5.1.2 By 2009, ensure important *J. communis* sites are recognised and, where appropriate, site protection policies are included in statutory and non-statutory plans e.g. Development Plans and other strategic plans including Local Biodiversity Action Plans (LBAPs) e.g. through identification as SLNCIs.
(ACTION: Planning Service, EHS, DARD, District Councils)
- 5.1.3 Monitor and review the effectiveness of MOSS in ensuring *J. communis* populations are being maintained and enhanced across Northern Ireland through appropriate habitat management prescriptions.
(ACTION: EHS)
- 5.1.4 Ensure agri-environment scheme prescriptions, relevant/appropriate to *J. communis* are contributing to maintaining and enhancing the population across Northern Ireland.
(ACTION: DARD, EHS)
- 5.1.5 By 2009, target positive management through MOSS, agri-environment schemes, and the LBAP process and grant aid for biodiversity to secure favourable management of *J. communis* sites.
(ACTION: DARD, EHS)

5.2 Site Safeguard and Management

- 5.2.1 By 2009, ensure conservation objectives are in place for all statutory sites which support *J. communis* ensuring that where possible the objectives do not conflict with the requirements of *J. communis*.

(ACTION: EHS)

5.2.2 By 2009, ensure that the existing suite of designated sites accommodates at least 50% of all known *J. communis* plants and populations.

(ACTION: EHS)

5.2.3 By 2010, secure favourable management of selected historic sites for *J. communis* to encourage recovery of these 'extinct' populations.

(ACTION: EHS)

5.3 Species Management and Protection

5.3.1 By 2010, ensure all designated sites are managed in a manner that is beneficial to the conservation of *J. communis* and encourage regeneration wherever possible.

(ACTION: EHS)

5.3.2 By 2009, implement any relevant actions from the Quercus led research study.

(ACTION: EHS)

5.3.3 By 2009, assess and where feasible, amend grazing regimes on all protected sites to favour *J. communis*

(ACTION: EHS)

5.3.4 By 2010, give consideration to re-establishing *J. communis* at selected former sites where direct conservation management is achievable.

(ACTION: EHS)

5.4 Advisory

5.4.1 By 2008, provide advice to landowners with *J. communis* on their land about suitable management requirements of species.

(ACTION: EHS, DARD)

5.4.2 By 2008, ensure that information on *J. communis* is available to all those who could play a role in its conservation and recovery including competent authorities and environmental consultants involved in the preparation of Environmental Impact Assessments (EIAs).

(ACTION: EHS, DARD)

5.5 International

- 5.5.1 Further develop links with The Republic of Ireland and other European and international organisations and programmes such as the European Environment Agency and the European Centre for Nature Conservation to promote and exchange information and experience in research, management techniques, education and conservation strategies
(ACTION: EHS)

5.6 Future Research and Monitoring

- 5.6.1 By 2009, establish distribution, abundance and viability of *J. communis* populations
(ACTION: EHS)
- 5.6.2 Periodically review monitoring protocols and condition assessment methodology for statutory sites with *J. communis*.
(ACTION: EHS)
- 5.6.3 Monitor habitat conditions and management to ensure that optimal site management is achieved.
(ACTION: EHS)
- 5.6.4 By 2008, set in place a reporting and monitoring structure to encourage progress towards delivery of targets and completion of actions identified in this plan.
(ACTION: EHS)

5.7 Communication and Publicity

- 5.7.1 Raise awareness of *J. communis* among the general public including volunteers, botanists, professional conservation workers and researchers by means of reports, publications, field meetings and presentation of research results at conferences.
(ACTION: EHS)

6 Links with other Action Plans

- 6.1 This plan should be considered in conjunction with the following UK and Northern Ireland Habitat Action Plans.

- Maritime Cliffs and Slopes
- Calcareous Grassland
- Limestone Pavement
- Upland Heath

6.2 It is likely that the implementation of this plan will also benefit the Northern Ireland populations of the following species:

- Chough
- Irish hare

7 **References**

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List of Useful Acronyms

ASSI	Area of Special Scientific Interest
BAP	Biodiversity Action Plan
BSBI	The Botanical Society of the British Isles
CEDaR	Centre for Environmental Data and Recording
CMB	Country side Management Branch
CMS	Country side Management Scheme
DARD	Department of Agricultural and Rural Development
DCAL	Department of Culture, Arts and Leisure
DETI	Department of Enterprise, Trade and Investment
DENI	Department of Education for Northern Ireland
DOE	Department of the Environment
DRD	Department for Regional Development
EHS	Environment and Heritage Service
ESA	Environmentally Sensitive Area
ESCRs	Earth Science Conservation Review Site
FCB	Fisheries Conservancy Board
HAP	Habitat Action Plan
JNCC	Joint Nature Conservation Committee
NMNI	National Museums of Northern Ireland
NESA	New Environmentally Sensitive Area
NIBG	Northern Ireland Biodiversity Action Group
NICMS	Northern Ireland Country side Management Scheme
NICS	Northern Ireland Country side Survey
NNR	National Nature Reserves
NT	National Trust
PPS	Planning Policy Statement
RA	Rivers Agency
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAP	Species Action Plan
SLNCI	Site of Local Nature Conservation Importance
SoCC	Species of Conservation Concern
SPA	Special Protection Area
UWT	Ulster Wildlife Trust
WFD	Water Framework Directive
WWT	Wildfowl and Wetlands Trust



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