Public awareness and participation in the conservation of common juniper at Aston Rowant National Nature Reserve.

J. McGinlay

Common juniper (*Juniperus communis* ssp. *communis*) is one of only three conifers native to Britain, and is one of the most widely distributed trees in the world (Marion and Houle, 1996). It can tolerate a wide range of climatic and soil conditions, from acidic to basic/chalky: its distribution in the north being limited by low temperatures, and in the south by dry conditions. It is a typical shrub of poor soils and harsh environments (Garcia *et al.*, 2000).

The species has two primary strongholds in Great Britain: the north and west of the Scottish Highlands, and the chalk hills of the south and east of England. In the three counties of Berkshire, Buckinghamshire and Oxfordshire there are some important common juniper colonies, particularly on the chalk downlands of the Chilterns and North Berkshire Downs and on the heathlands and acidic commons of South Buckinghamshire around Burnham Beeches (BBOWT, 2001).

The colonies in Southern England have been steadily declining since records began at the beginning of the 19th Century (Ward 1973). In the past, juniper scrub was more common along the Chiltern escarpment but few large colonies have survived, that at Aston Rowant being the largest (OS Grid Ref: 473000 196500). It consists of several hundred individuals concentrated particularly in two clusters at Beacon Hill and Linky Down, and is one of the best remaining examples in the UK of lowland juniper scrub on chalk. Aston Rowant National Nature Reserve (NNR) is a Special Area of Conservation (SAC) partly for its common juniper population. However, most of the bushes now present are old and regeneration is rarely observed at the site. As many bushes are now senescent or moribund, the colonies are likely to start declining significantly at some point in the future (English Nature, 2002).

Regeneration of common juniper from seed has been found to be rare and this has been an important factor in the species' decline. Intervention is needed to protect existing populations, to encourage reproduction and to manage the ground suitably to enable successful regeneration of natural seed. The Oxfordshire local Species Action Plan (SAP) (UKBAP 2004) for common juniper provides a series of actions over a 10-year plan (2001-2011), designed to protect and secure the future of common juniper in the three counties.

Various attempts have been made to encourage common juniper to regenerate in-situ and ex-situ, and the local SAP states that "finding willing partners to raise plants from seed and cuttings is a serious constraint, which could possibly be remedied by greater publicity and the attraction of sponsorship." Among the actions included in the SAP are also priorities relating to public awareness and educational activities. This includes production of factsheets and holding of seminars for landowners and managers, but also for the general public in order to raise awareness of the species and its current declining status.

Public awareness is therefore likely to be an essential component of efforts to conserve common juniper and there is only so much official bodies will be able to achieve without the awareness, support and participation of the public.

One way to achieve this was to assess the current extent of public awareness of, and participation in, efforts to conserve common juniper at Aston Rowant NNR in the Chilterns, by means of a questionnaire survey of the general public living locally to the reserve.

The survey was intended to answer research questions such as: to what extent the local population is aware of the existence of common juniper colonies at Aston Rowant NNR; to what extent the local population is aware of the fact that the colonies are declining and might become extinct in the not too distant future; to what extent they are aware of initiatives to preserve the common juniper colonies and prevent their extinction, and what their attitude is to these initiatives; to what extent the local population is involved in nature conservation in general, and specifically in the initiatives to preserve common juniper at Aston Rowant NNR?

The research was undertaken during July and August 2004 by means of a postal survey of selected households in a small catchment area near to the reserve. An arbitrary point within the NNR was selected as a best estimate of the centre of the site. A radius of 4 km was drawn around this central point to represent a catchment area within which it was feasible for fit and able residents to walk to the site. A random selection of residents was then selected from the edited electoral register for polling districts whose populations fell predominantly within the catchment area. The survey population within the catchment was estimated to be approximately 3,400 adults, and would exclude children under 18, adults ineligible to vote, or who have not registered in this area to vote, as well as members of the public who wish to be excluded from the edited register. From the population a sample of 102 names was selected, representing approximately 3% of the population. As the true population of the catchment area will be greater than 3,400, the sample will in fact be a smaller percentage of this, perhaps approximately 2%.

A questionnaire was then devised with 13 questions intended to be as clear and unambiguous as possible, and to elicit responses likely to provide useful data to test the research questions. The questionnaire was designed to establish whether respondents knew of and had visited Aston Rowant NNR; to establish whether they knew of the common juniper colonies there and of the declining status of common juniper; to test knowledge of initiatives to conserve the colonies at Aston Rowant NNR and to test attitudes to these initiatives, and to ascertain whether respondents were interested in or actively involved in nature conservation in general, and specifically relating to common juniper at Aston Rowant.

Of the 102 questionnaires sent, a total of 54 were returned completed, a response rate of 53%. The results indicated that the Aston Rowant National Nature Reserve is well known in the local area with a large majority of respondents (76%) having visited the site and a third (33%) identifying themselves as regular visitors, visiting several times per year. Even if the conservative assumption is made that the respondents represent a self-selecting group motivated by an interest in nature and conservation, the true figures for the whole local population might be expected to be not less than half of the above figures.

The results also indicated that approximately 17% of respondents (and therefore at least 8% of the sample) are aware of the presence of the common juniper colonies at the NNR site. Only a minority of the local population appears therefore to be aware of their presence. Fewer than half of this number of people (6% of respondents, or at least 3% of the local population) are aware of the declining status of the colonies and of the work being done by English Nature to arrest this decline. Only a minority of the local population therefore appears to be aware of the colonies' declining status and of the work by English Nature.

Despite this low level of awareness, the overwhelming majority of respondents (nearly 90%), irrespective of their knowledge of the common juniper colonies and of their status prior to the survey, thought that the initiatives to conserve the species both at the NNR site and throughout the region were important and worthwhile. The low level of awareness therefore does not seem to arise from a lack of interest or concern by the public. As regards the Oxfordshire Species Action Plan for common juniper, awareness of this initiative appears to be very low (perhaps 1% of the local population are aware of this initiative).

This interest in nature and wildlife conservation was reflected in the fact that two thirds of respondents (67%) expressed an interest in such matters, and one in five (22%) gave money or support to an environmental or conservation charity or organisation. The corresponding figures for all of the sample to whom the questionnaires were sent (i.e. including non-respondents) would therefore be expected to be not less than half these figures. 24% of respondents claimed they would be interested in volunteering to help conserve common juniper if they were aware of opportunities to do so. That said, it is not known how many would actually come forward to volunteer in the face of other commitments. The results indicated that only 1 respondent in 50 was actually a nature conservation volunteer, and none was involved in the conservation of common juniper anywhere in Southern England. Support for environmental conservation therefore appears to be high among the local population, but active involvement through volunteering is indeed very low.

It therefore appears that considerable scope exists to raise awareness of the declining status of common juniper in this region, and potentially to harness considerable support for conservation initiatives for the species. Given that only a minority of the many local visitors to the site appear to notice the colonies, this awareness raising could include methods as simple as some on-site interpretation, such as an information panel. As regards active participation through volunteering, it is clear that involvement by the local population is likely to be very low. Nevertheless, a significant proportion of the local population, approximately 1 in 4, appears to be interested in opportunities to volunteer to conserve common juniper and so it must be assumed that at least some of these people would actually be able to find time to participate if the opportunities were presented to them.

Acknowledgements

The author would like to thank Graham Stevens of English Nature and Dr Jocelyne Hughes of Oxford University Department for Continuing Education for their help and guidance throughout the work on this project. This project was carried out as part of the Undergraduate Diploma in Environmental Conservation at OUDCE.

References

BBOWT 2001. Updated species action plan for common juniper (*Juniperus communis* spp. *communis*) in Berkshire, Buckingham and Oxfordshire. BBOWT.

English Nature 2002. Aston Rowant National Nature Reserve – Juniper Management Plan 2002-2007. English Nature.

García, D., Zamora, R., Gómez, J.M., Jordano, P. and Hódar, J.A. 2000. Geographical variation in seed production, predation and abortion in *J. communis* throughout its range in Europe. Journal of Ecology, 2000, 88, 436-446.

Marion, C. and Houle, G. 1996. No differential consequences of reproduction according to sex, in *J. communis* var. *depressa* (*Cupressaceae*). Americal Journal of Botany, 83(4), 480-488.

UKBAP 2004. www.ukbap.org.uk - UK Biodiversity - includes Species Action Plan for *Juniperus communis*, hosted by the Joint Nature Conservation Committee (JNCC). 2004.

Ward, L. K. 1973. The Conservation of Juniper. I. Present Status of Juniper in Southern England, Journal of Applied Ecology, 1973, 10, 165-188.

James McGinlay, 25 Fairlie Road, Oxford, OX4 3SW
jimmcginlay@hotmail.com