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**Conservation of Juniper in the
Yorkshire Dales National Park in 2007**

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Introduction

Work was carried out by YDNPA Conservation staff Phill Hibbs and Frances Graham in 2007 to further the implementation of the Juniper Species Action Plan in Nature in the Dales – the local biodiversity action plan for the Yorkshire Dales National Park. A GIS layer with all known populations and individuals was created by in 2006. This is updated as we become aware of new records. Some seed was collected in 2006 for *ex-situ* propagation and future re-planting initiatives. This work has continued in 2007 and has expanded to include the seed and hardwood cutting collection from all three large populations in the National Park. It is hoped that this work will enable a programme of replanting *ex-situ* grown plants within SSSI stands to begin in 2008/9, where appropriate. The rationale for this work and a summary of progress is outlined below.

Rationale for seed and cutting collection

For most new native woodland plantings that may include Juniper in the Yorkshire Dales, national guidance states that the juniper plants can be sourced from within the national generic seed zone for native species. This relevant seed zone includes the large productive Juniper populations in Teesdale. Collection and propagation has been happening for some time in Teesdale and plants of a suitable size are now available.

However, for new native woodland plantings including juniper within 1km of an existing populations the relevant Forestry Commission guidance recommends that material should be sourced from this existing population. Therefore, our juniper collection work aims to provide a supply of plants for new plantings within a 1km buffer zone of existing populations. If there is an excess of plants then these could be preferentially used at other suitable sites in the National Park. Plants propagated from seed take 3-4 years before they are 15cm, which is a suitable height for planting into new native woodland initiatives. Therefore, seed collected in 2006 will not be of a saleable size until 2009/2010. However, plants propagated from cuttings take only 12-18 months before they are of a suitable size and if collected in 2007 would be ready for suitable planting schemes in 2008/09, providing plants until ones propagated from seed were available.

Although cuttings will produce genetic clones of the parent plants there is a consensus of evidence in genetic molecular marker studies read, that Juniper populations throughout Europe (including studies in the UK), have retained a high level of between and within population diversity (Van der Merwe *et al.*, 2000). Therefore, to represent the within population genetic diversity, a small number of cuttings should be collected from many individuals and include material from a range of growth forms. This sampling strategy should also prevent the cutting collection from having an adverse effect on the population and the ecology of the sites (Broome, 2003).

The professional tree nursery, who started propagating juniper seed for us in 2007, are also propagating juniper seed and cuttings successfully for other National Parks. They have provided us with technical advice about taking the cuttings and they recommend that the best time to take them is in early December. During seed collection visits this year it was clear that due to the wet weather this year, the juniper plants have put on a flush of new growth which was ideal material for hardwood cuttings.

Practical progress

Moughton population, Ribblesdale/ Crummuckdale

The Moughton population spans five Ingleborough SSSI management units and their most recent condition assessments have been as follows:

Management Unit	CSM Condition Assessment		
	2002	2005-6	2006
28	U	-	UR
33	U	-	F
34	U	-	UR
35	U	-	F
36	U	Not assessed	-

Key: U = Unfavourable; UR = Unfavourable Recovering; F = Favourable

Seed was collected from Moughton Common and the adjacent area of Ingleborough NNR on September 18th with consents from landowners and Natural England. The plants seem to have benefited from the warm Spring and wet summer this year as next years seed is abundant. Mature seed was more frequent in the NNR area and it was noted that there was some natural regeneration here too. See photos 1 to 4. The NNR have confirmed that they have also seen limited natural regeneration on the site (Evans, *pers comm.*)

Hardwood cuttings were collected from, Ingleborough NNR on December 3rd with consents from Natural England who are also the landowner. Approximately 400 cuttings were collected in total, consisting of 3 or 4 cuttings from >100 different plants. They have been dispatched to the professional tree nursery and should be ready to plant out in 12-18 months all being well. Five female Roe deer were also recorded in the enclosure on the visit.

There has been some interest from Natural England in planting some of the locally sourced material back into this area in due course.

Thwaite Stones population, Swaledale

The Thwaite Stones population spans the two Thwaite Stones SSSI management units and their most recent condition assessments have been Unfavourable – No Change (Mgt unit 1) and Favourable (Mgt unit 2).

Seed was collected from Thwaite Stones on September 24th with consents from the Woodland Trust and Natural England. The plants seem to have benefited from the warm Spring and wet summer this year as next years seed is abundant and many plants have put on a lot of growth this year. Mature seed was less than frequent this year. Last summers very dry conditions seem to have resulted in a little die back and many of this years mature seeds appear to have been a casualty of that. Some natural regeneration was noted about 30 metres North of the Southern boundary wall where bracken was absent. Bracken was abundant and thriving throughout most of the rest of the site.

Hardwood cuttings were collected from Thwaite Stones on December 11th with consents from Natural England and the Woodland Trust. Approximately 340 cuttings were collected in total, consisting of 3 or 4 cuttings from approximately 85 different plants. They have been dispatched to the professional tree nursery and should be ready to plant out in 12-18 months all being well. The number of resulting plants will depend on the success rate.

There has been some interest from the Woodland Trust in planting some of the locally sourced material back into this area in due course.

Harkerside Moor population, Swaledale

The Harkerside Moor population spans Management Unit 6 of the Lovely Seat – Stainton Moor SSSI which is currently in Unfavourable – Recovering condition.

Seed was collected from the Harkerside population on October 3rd with consent from the landowner and Natural England. The plants seem to have benefited from the warm Spring and wet summer this year as next years seed is looking promising and many plants have put on a lot of growth this year. Mature seed in good condition was more frequent on this site than on Moughton and Thwaite Stones and for some reason individuals with a columnar form seemed to have more mature seed than other forms. Rabbits were abundant and bracken was impenetrable in places. Only a few sheep were seen on the site but it was evident that sheep shelter under some of the older plants. Unlike Moughton (in the NNR) and Thwaite Stones, no natural regeneration was seen at Harkerside.

Hardwood cuttings were collected from Harkerside on December 11th with consents from Natural England and the landowner. There was an abundance of suitable extension growth material at this site this year. Approximately 480 cuttings were collected in total, consisting of 3 or 4 cuttings from approximately 120 different plants. They have been dispatched to the professional tree nursery and should be ready to plant out in 12-18 months all being well. The number of resulting plants will depend on the success rate.

Conclusions

Seed and hardwood cuttings are being propagated from all three sizeable Juniper populations in the YDNP and some natural regeneration has been recorded on two of the sites in 2007. The species is considered to be stable within the National Park.

Photo 1: Juniper on Moughton Common



Photo 3: Natural regeneration



Photo 2: Immature green fruits



Photo 4: Lush extension growth during 2007



References

Broome, A. 2003. Growing juniper: propagation and establishment practices. Forestry Commission Information Note 050.

Merwe, M. Van Der, Winfield, M. O., Arnold, G. M. & Parker, J. S., 2000. Spatial and temporal aspects of the genetic structure of *Juniperus communis* populations. *Molecular Ecology* 9(4), 379-386.