

NOWELL'S LIMESTONE MOSS *Zygodon gracilis* SPECIES ACTION PLAN

DESCRIPTION

Nowell's limestone moss is a green tuft-forming moss much larger than the other British species of the genus. It grows from 2 to 6cm in height with lanceolate, pointed leaves, the upper leaves being sharply toothed towards the tip. Its natural habitat is dry exposed outcrops and loose boulders of Carboniferous limestone, although almost all recent records have been from old limestone walls up to an altitude of 2,100 metres. This species is only found on open terrain and will not tolerate shaded sites.

LOCAL BIODIVERSITY IMPORTANCE

This species is endemic to Europe where it has been recorded in Austria, Germany, Switzerland, Italy and Poland. In Britain, Nowell's limestone moss has only been recorded at a number of sites within the Craven district of the Yorkshire Dales National Park. It has been found at only two of its former sites, in the Ingleborough and Pen-y-ghent areas, since 1970. Both sites support several cushions of the plant on drystone walls.

NATIONAL & INTERNATIONAL BIODIVERSITY IMPORTANCE

The species is provisionally classified as Endangered in Britain and listed as Endangered in the 2001 British Red Data Books: Mosses And Liverworts. It is specially protected under Schedule 8 of the Wildlife and Countryside Act 1981. Nowell's limestone moss is a UK BAP Priority Species.

CURRENT ISSUES, OPPORTUNITIES & THREATS

This species is particularly susceptible to unsympathetic renovation, removal or cleaning of dry stone walls. Colonies are also threatened where zinc-coated wire is used along the top of walls to make them stock-proof. Zinc appears to be toxic to this and many other species of moss. Nutrient enrichment as a result of agricultural practices could also threaten existing colonies. Botanical collecting may be a problem at some sites.

A programme of survey and monitoring, and study of the autecology of the species is currently being undertaken jointly by the Natural History Museum, London and Bradford University.

All locations where this species has been recorded recently are designated Sites of Special Scientific Interest (SSSI).

AIMS OF THE SPECIES ACTION PLAN

- To maintain populations of Nowell's limestone moss at all known sites within the Yorkshire Dales National Park.
- To increase the extent of current populations where possible, including the establishment of new colonies in the vicinity of extant populations if this is considered desirable and feasible.
- To establish *ex situ* stocks of the species to safeguard extant populations.

OBJECTIVES

To achieve these aims we need to:

- Determine the current distribution and status of Nowell's limestone moss within the Yorkshire Dales National Park by further survey and refinement of monitoring techniques by 2003.
- Ensure that all known sites are in appropriate conservation management by 2004.
- Determine the feasibility of establishing three new colonies in the vicinity of extant populations. Note that this is currently a lower priority than undertaking further survey work by 2005.
- Develop conservation techniques for establishing *ex situ* stocks of the species by 2005.

ACTIONS & TARGETS

To achieve these objectives the following actions should be carried out and the targets achieved within the time-scale given:

Actions	Target date	3 year cost £
Revisit and survey all sites with historical records of Nowell's limestone moss, extending the survey to cover all areas of suitable habitat in the immediate vicinity of these sites in order to determine its current distribution and status in the Yorkshire Dales National Park.	2003	2,000
Implement a monitoring programme to assess any population changes at all known sites.	2007	2,000
Ensure that the conservation requirements of the species are made known to all appropriate organisations and individuals (especially landowners and land managers) at the locations where Nowell's limestone moss is present. Further specialist advice should be available if required.	2004	1,000
Support the current development of <i>ex situ</i> propagation methods at Kew being funded through English Nature's Species Recovery Project and BAP funds	2005	0
Dependent upon the results of ongoing survey, establish three new colonies of Nowell's Limestone Moss.	2005	3,000

WHO WILL BE RESPONSIBLE FOR THE ACTION PLAN?

Lead Agency	Key Partners
English Nature	Yorkshire Dales National Park Authority Natural History Museum, London Bradford University Royal Botanical Gardens, Kew British Bryological Society Landowners and managers