

Small cow-wheat Recovery Project

Progress report to the Biodiversity Action Grants Scheme

The Small cow-wheat (*Melampyrum sylvaticum*) Species Recovery Project was created by the UK SAP *Melampyrum sylvaticum* National Steering Group to address the targets of the *Melampyrum sylvaticum* Species Action Plan. The decline of the species is to be reversed by introducing the species to five sites by 2010 and enhancing the genetic diversity of the species. This report outlines the methodology used to meet the SAP targets and describes the progress made through the Species Recovery Project within the framework of the project aims and the Biodiversity Action Grants Scheme objectives.

Aim 1. To reverse the decline of the species by creating five populations of small cow-wheat

Small cow-wheat has been lost from an estimated 84 % of its distribution, the creation of five new populations is a small but important step towards reversing these losses. Using seed from three donor populations will safeguard the genetic diversity of the species by providing an opportunity for genetic mixing. This will hopefully result in more genetically diverse individuals that can adapt more readily to environmental change. This part of the project falls within BAGS objective A, Species and Habitats.

Protocols on seed collection, translocation and sowing were developed from a PhD project on small cow-wheat undertaken through the University of Aberdeen and undertaken between June and August 2005. Five sites within the Highland Perthshire Core Forest Area were selected based on habitat descriptions from existing populations. Seeds and leaf tissue samples were collected from three donor populations in the Scottish Highlands. Seeds were mixed in equal quantities and transplanted into the five acceptor sites, each seed was given an identifying code and its position recorded. The leaf tissue samples will be used to ascertain baseline genetic diversity of seed in order to assess the extent of genetic mixing within successive generations of the introduced populations. Extra seeds from each of the donor plants were collected and sown with individual host plants at the Forest Research Northern Research Station nursery. Seeds from these cultivated plants can be used for further recovery work.

BAGS objective B, People, has been met by consulting landowners and managers of sites supporting donor populations and introduced populations at every stage of the project. All involved parties have been given written material which describes the ecology of small cow-wheat and explains why the Recovery Project was set up in light of the information we have on the species. This information will be consolidated by a handout on the management of small cow-wheat sites soon to be circulated to all landowners with the species on their property.

Aim 2. To effectively assess the genetic and demographic health of the new populations

A programme has been developed that will monitor the new populations at key stages in the lifecycle. The rigorous experimental set up will enable the

relative fitness of plants to be monitored so that the suitability of chosen sites and different donor populations can be assessed. This information will be invaluable for continued expansion of the small cow-wheat distribution as it will inform decisions on further introductions (and hence, meets BAGS objective E, Knowledge). The monitoring programme will run from April 2006 when the first transplanted seedlings will emerge, and has been scheduled until mid-summer 2007. The National Steering Group intends to continue monitoring the populations indefinitely depending on available resources.

Aim 3. To contribute to knowledge on carrying out successful plant reintroductions and increase the effectiveness of lessons learnt by disseminating the information to the conservation community

The project has been publicised through the National Steering Group partnership organisations in newsletters and websites. A summary of the findings of the PhD project and how it has contributed to the Recovery Project has been written for the JNCC newsletter 'Looking to the hills'. In March 2006 a tutorial on how the population created through the Recovery Project will allow small cow-wheat to cope better with environmental change will be given to students at Aberdeen University and a similarly themed presentation will be made at the Student Conference on Conservation Science in Cambridge. A member of the National Steering Group has been informally invited to present a paper on the project at a symposium on rare plant introductions planned by the Botanical Society of the British Isles in September 2006.

Advice aimed at land owners and managers, based on the information gained from the project, will be delivered through the web-based Forestry Research's Habitats and Rare, Priority and Protected Species (HaRPPS) woodland management decision support tool. The outcomes of the project (whether successful or not) will also be entered on the Conservation Evidence website which provides a forum for conservation researchers and practitioners to contribute and get access to best management practice. The members of the National Steering Group all have access to the UK Biodiversity Action Reporting System and progress made on achieving SAP targets will be reported through this. The contribution to these reporting systems allow the projects outcomes to be integrated within country-wide conservation (BAGS objective D, Integration and Co-ordination).

In conclusion, the Small cow-wheat Species Recovery Project has developed protocols on the translocation of seeds and completed the setup of five new populations. Comprehensive planning and recording of the creation of the new populations will allow the demographic and genetic health of successive generations to be monitored and assessed. The knowledge gained from this project will contribute not only to the recovery of small cow-wheat but will also inform future reintroduction programmes aimed at the recovery of other rare plants. Every opportunity has, and will be taken to disseminate the valuable information generated by this project.

Sarah Dalrymple,
on behalf of the UKSAP *Melampyrum sylvaticum* National Steering Group,
February, 2006.

Figure 1: Small cow-wheat (*Melampyrum sylvaticum*)



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Scottish Wildlife Trust, 2005

Figure 2: Location of Small cow-wheat Recovery Project donor and replacement sites

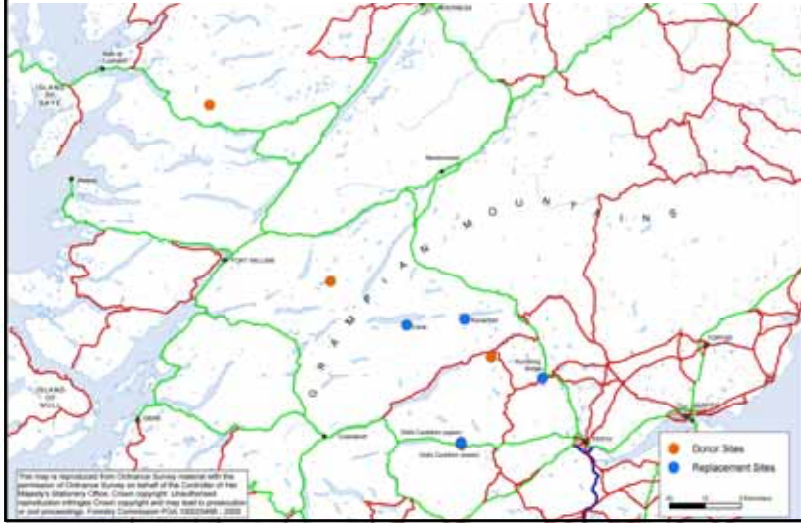


Figure 3: Deil's Cauldron and Kynachan-two of the five sites in Perthshire used in the project



Figure 4: Small cow-wheat seeds in sample tubes labelled with a unique code



Figure 5: Pots in the nursery sown with a seed from each of the donor small cow-wheat plants and planted with a host plant.

