

ECPGR Cereals Network
Avena Working Group
Project proposal for ECPGR Phase VIII

Project title: Survey of wild oat populations for *in situ* conservation

1. Background and justification

One of the priorities set during the Cereals Network Meeting at Foça, Turkey, for ECPGR Phase VIII Avena Working Group is the *in situ* / on farm conservation and development. Currently, a project funded by the EU under regulation 870/2004 entitled ‘An Integrated European *In Situ* Management Workplan: Implementing Genetic Reserves and On Farm Concepts’ (AGRI GEN RES 057: AEGRO) uses *Avena* as a self-pollinated model crop. One of the tasks of the project was to prioritize species for *in situ* conservation. A group of oat scientists convened in Athens during March 2008 and prioritized the following five wild oat species present in southern Europe for *in situ* conservation based on threat and/or their distribution; the three diploid species *Avena hirtula*, *A. prostrata* and *A. ventricosa*, and the two tetraploid species *A. murphyi* and *A. insularis*.

2. Objectives of the project

The objectives of the proposed project to be funded by ECPGR are to survey and record the species populations in their natural habitat and to collect restricted number of samples in order to provide a reference for each one of them. This will be accomplished by visiting the corresponding sites where these species are found in the wild. Special effort will be made to detect already protected areas where any of these species grow.

3. Workplan

The five species are present in Southern European countries and each one will be treated separately.

The diploid species include *A. hirtula*, *A. prostrata* and *A. ventricosa*

Avena hirtula

This species is the wild progenitor of the slim oat, *A. strigosa*. It is common in the Iberian Peninsula and to lesser extent in Italy and Greece. In Spain *A. hirtula* grows in diverse habitats and selection of populations for *in situ* conservation will be according to its presence in already assigned protected areas. Also, the possibility of *in situ* conservation of populations of these species in Crete will be examined. These populations are naturally isolated and present in the eastern fringe of Europe.

Avena prostrata

In Europe this species is known only in a restricted area in southeastern Spain and occurs there mainly on metamorphic bed rock. Morphologically it is rather similar to *A. hirtula* but differs from it by five chromosomal rearrangements.

Avena ventricosa

Until recently this species was known from two localities only: Baku in Azerbaijan and Oran in Algeria. Survey of herbarium material revealed that this species occurs

also in Cyprus. In a field trip to this island in 1967 a number of populations of *A. ventricosa* were detected in the central valley. We intend to visit Cyprus for assessing the risk for the wealth of these populations from urbanization and expansions of agriculture in the island and to identify and propose an *in situ* conservation site for this species.

The tetraploid species include *A. insularis* and *A. murphyi*

Avena insularis

This is a recently discovered species which appears to be the tetraploid progenitor of all the hexaploid oat types, including the common oat. Hybrids between the common oat and *A. insularis* are partially fertile and this wild species is an important member of the secondary gene pool of the common oat.

Avena insularis is present in two areas in southern Sicily: north of Gela and west of Catalgirone. In these areas *A. insularis* is restricted to uncultivated heavy soil.

The aim of the field exploration for this species is to determine the populations for *in situ* conservation.

Avena murphyi

This species shows weaker genetic ties with the common oat than the previous species but is still a member of the common oat secondary gene pool. This species is found at the southern tip of Spain, west of Tarifa, where it is restricted to uncultivated heavy soil. The natural habitat of *A. murphyi* was traditionally used as pasture land but in the last 30 years or so this soil is turned into arable land and the area of this species is rapidly declining. Detection of populations of this species for *in situ* conservation is therefore urgently required.

4. Project coordination and administrative structure

During the next two years (2009 and 2010) four places will be visited where these species are found in the wild (Cyprus, Crete, Sicily and Southern Spain). This will be realized by visiting two places each year. During 2009 Sicily and Southern Spain will be visited and during 2010 Cyprus and Crete. The best time for detecting wild oat species in their natural habitat is shortly before maturation – end of April to mid May. Each trip will last about 2 weeks and funds will be used for travelling expenses, renting cars and accommodation. The people involved will include Prof. Gideon Ladizinsky, a local scientist from the places surveyed and Prof. Andreas Katsiotis. However, travelling expenses and accommodation for Andreas Katsiotis will be covered by the project AGRI GEN RES 057: AEGRO.

The project will use the 25% of the Avena Working Group budget. The project will be coordinated by the AWG Chairman and the ECPGR Secretariat.