focus

NATURE

NATURA 2000

LIFE preventing species extinction

Safeguarding endangered flora and fauna through ex-situ conservation

nature

EUROPEAN COMMISSION

environment

Photo: LIFE04 NAT/CY/000013

Recovery of habitats and plant species

For rare or threatened plant species and habitats, ex-situ conservation measures can provide a basis for recovery in the event of accidental loss or degradation. LIFE project actions involving the establishment of plant seed banks and plant micro-reserves are helping to advance knowledge in this area.

In Hungary, a LIFE project (**LIFE08 NAT/H/000288**) led by the Central Agricultural Office is focusing on the establishment of a "Pannonian seed bank" to support the long-term preservation of seeds of the wild vascular flora of the Pannonian biogeographical region.

Around 2 200 wild vascular plant species occur within the Pannonian biogeographical region in Hungary, a region rich in biodiversity and endemic species. The proposed Pannonian seed bank aims to collect and store approximately 50% of the native Hungarian flora (at least 800 species).

The project will develop a strategy for seed collection and ex-situ storage, building on existing methodologies, with duplicate seed banks being established at two different geographical locations: in a mine in the Aggtelek national park, and at the Institute of Ecology and Botany in Vácrátót. A computer-based information system for data management of the seed bank will also be developed.

Once established, a selection of seed bank samples will be used for pilot reintroductions in a typical sand steppe community with priority habitats in the Kiskunság National Park, a Natura 2000 site.

COASTAL DUNES WITH JUNIPER SPECIES

The establishment of a seed bank is also an important component of a LIFE project (**LIFE07 NAT/GR/000296**) in Greece,

Habitat restoration by planting nursery breed plants (yews) on Aitana mountain, Spain

Photo: LIFE03 NAT/E/0064 Luis Serra

which is focusing on the conservation of coastal dunes with *Juniperus spp.* in Crete and the South Aegean (Greece).

Coastal dunes with *Juniperus spp.* are a priority habitat (code 2250*) listed in the Habitats Directive, but in Greece, no conservation measures have been taken for the protection and restoration of this threatened habitat.

The project, therefore, aims to establish a basis for long-term conservation. Target sites have been selected to represent the full range of characteristics and threats found in all the habitat's locations in Greece, thereby strengthening the demonstration potential.

In addition to undertaking actions to protect and restore the habitat, a key objective of the project is to collect, store, and propagate the keystone species of the coastal dunes with *Juniperus spp.* outside of their natural habitat, thereby enhancing their conservation ex-situ.

Genetic material, both seeds and cuttings, is being collected from all Cretan sites for storage in a seed bank and for cultivation in the botanical garden of the Mediterranean Agronomical Institute of Chania (MAICh). According to results of the first stages of the project, there are 31 keystone species in the habitat in Crete. Seed lots of *Juniperus macrocarpa* and five other keystone species have already been collected. The drafting of germination protocols is under way for most of the collected species.

Seedlings coming from the germination experiments are cultivated in greenhouses and in the botanical garden. To date, most attention has focused on the germination and propagation of *Juniperus macrocarpa*. However, the processing of the seeds of this species as well as the germination experiments, have proved to be a difficult and time consuming task.

Cuttings of *Juniperus macrocarpa* have also been collected from populations in Kedrodasos and on the islet of Chrysi. Here again, the vegetative propagation of juniper has proven difficult. However, so far, about 200 cuttings of juniper have been successfully rooted and transplanted in pots.

HABITAT CONSERVATION IN CYPRUS

In Cyprus, ex-situ conservation is also a key aspect of a LIFE project (**LIFE08 NAT/CY/000453**) that focuses on the conservation of priority habitats (Cedrus brevifolia forests (*Cedrosetum brevifoliae*) and Scrub and low forest vegetation of *Quercus alnifolia*) and species (*Arabis kennedyae*, *Astragalus macrocarpus ssp. lefkarensis*, *Centaurea akamantis* and *Ophrys kotschyi*).

The project will seek to improve the conservation status of the priority plant species and habitats by establishing and managing a network of five plant micro-reserves (PMRs) - small plots of land that are of great value in terms of plant richness, endemism and rarity.

In addition to undertaking actions to reduce threats arising from recreational activities, fire, the use of pesticides, and the uncontrolled expansion of cultivated areas, the project also includes actions to promote the ex-situ conservation of plant genetic resources, aimed at securing the long term survival of the target species.

Seed lots will be collected over three successive years for storage in a seed bank and in living plant collections. This will help to facilitate the project's longer term goal of enriching the natural populations of the targeted species and habitats, as most are believed to have low genetic variability and to suffer from genetic erosion. Greater genetic diversity will help to improve their resilience, in particular against the threat of climate change.

RESTORING HABITATS IN RÉUNION

Réunion is classified as one of the world's top 25 hotspots for land biodiversity. The semi-xerophilous (semi-dry, drought loving) habitats represent some of the most remarkable habitats of the island. Now completely disappeared from other areas of the Mascareignes, today these habitats are estimated to cover only 1% of their original area (56 800 ha) on Réunion.

These last relics are subject to significant natural and man-made threats and are present today only in degraded form and in inaccessible areas (gullies and cliffs). The project (**LIFE07 NAT/F/000188**) aims to restore 9 ha of the unique semi-xerophilous habitats on Réunion to their original condition with the help of ex-situ actions. The project expects to reinforce the populations of at least 22 rare and endangered species typical of the habitat by collecting their seeds and producing the plants in nurseries.

School children on Réunion learn about the restoration of endangered habitats

Photo: LIFE07 NAT/F/000188