Symposium 11 : Plant Conservation

Ex-situ and in-situ joint conservation actions for threatened Mediterranean island flora

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**Project summary**

**Goal**: to improve knowledge and conservation of threatened island plants with *in situ* conservation measures supported by *ex situ* techniques

**Partners**:
- Sóller Botanical Garden Foundation, Balearic Islands
- Conservatoire Botanique National de Corse
- Hortus Botanicus Karalitanus, Cagliari, Sardinia
- Department of Biological Sciences, Catania, Sicily
- Mediterranean Agronomic Institute of Chania, Crete
- Agricultural Research Institute, Cyprus
- Department of Forest, Cyprus
- Mediterranean Plant Specialist Group IUCN/SSC

**Project duration**: mid-2016 – mid-2019

**Budget**: 1.9 millions € - 80% funded by the MAVA Foundation
1. Elaboration of conservation priorities and selection of target plant species in the islands

Four criteria defined, discussed and approved

Selected taxa

- Threat level: 343 taxa
- Regional responsibility: 630 taxa
- Policy plant taxa: 71 taxa
- Wetland plants: 80 taxa

Six local lists of target species

One general list of target species: 735 taxa

436 taxa selected for conservation measures
2. Planning *in situ* and *ex situ* activities

**In situ activities**
63 management and monitoring plans elaborated for 51 taxa
- Translocations (including reintroduction, reinforcement and introduction)
- Control/removal of invasive species
- Management measures such as erection of protective fences

**Ex situ activities**
- Seedlots from 429 taxa to be collected and stored
- 27’000 plants (162 taxa) produced for *in situ* conservation actions
3. *In situ* conservation actions

63 conservation actions (~10 per island)
63 monitoring plans (~10 per island)

<table>
<thead>
<tr>
<th>TAXON</th>
<th>LOCALITY</th>
<th>CONSERVATION ACTIONS*</th>
</tr>
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<tbody>
<tr>
<td>1. Astragalus gennarii</td>
<td>Monte Albo (Lula)</td>
<td>Translocation and protective fence erection</td>
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<tr>
<td>2. Centaurea magistrorum</td>
<td>Monte Luas (Villagran De Strisaii)</td>
<td>Protective fences erection and removal of invasive species</td>
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<td>3. Centranthus amazonum</td>
<td>Codula di Luna (Urzulei)</td>
<td>Management action (closure of the path near the population)</td>
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<td>4. Dianthus morisianus</td>
<td>Portixeddu (Buggerru)</td>
<td>Translocation and protective fence erection</td>
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<tr>
<td>5. Gentiana lutea subsp. lutea</td>
<td>Monte Genziana (Talana)</td>
<td>Translocations, protective fences erection</td>
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<tr>
<td>6. Ophioglossum vulgarum</td>
<td>Funtanamela (Lacconi)</td>
<td>Management actions (protective fences erection and removal of alien species)</td>
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<td>7. Rhamnus persicifolia</td>
<td>Rio Is Eras (Talana)</td>
<td>Management measure for the patriarch (artificial river bank)</td>
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<td></td>
<td>Monte Genziana (Talana)</td>
<td>Translocation and removal of alien plants</td>
</tr>
<tr>
<td>8. Ribes multiflorum subsp. sandaloticum</td>
<td>Monte Novo San Giovanni (Orgosolo)</td>
<td>Protective fences erection</td>
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<tr>
<td>9. Ribes sardoum</td>
<td>Monte Corrasi (Oliena)</td>
<td>Translocation</td>
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<tr>
<td>10. Senecio morisi</td>
<td>Funtanamela (Lacconi)</td>
<td>Translocation, removal of alien plants and protective fences erection</td>
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</tbody>
</table>
Management actions were required for over 80% of translocations.
4. *Ex situ* conservation actions

- **740** seed-lots (target: $\geq 100$ per island)

- **457** *taxa* (target: $\geq 20$ per island)

- **410** germination tests (target: $\geq 20$ per island)

- **283** *taxa* (target: $\geq 20$ per island)

- **27’000** plants produced (target: $\geq 1500$ per island)

- **162** *taxa* multiplicated (target: $\geq 20$ per island)

- **250** seed-lots duplicated (target: $\geq 50$ per island)
Mid- and long-term monitoring protocols for translocated taxa were planned/implemented in order to ensure their sustainability.

**Care-Mediflora**  
(short-term monitoring plan)

**Post – Care-Mediflora**  
(long-term monitoring plan)

**Monthly monitoring**  
Bi-monthly monitoring

**Species-specific protocols**
6. Networking and communication

Exchange of experiences within the partnership and among other stakeholders

Common approach

Joint meetings

Collaboration with regional authorities and local stakeholders
CARE-MEDIFLORA supported the Network of Mediterranean Plant Conservation Centres “GENMEDA”

- New website: genmeda.net/
- 3 GENMEDA meetings
- Enlargement of the network to 22 members
Networking and communication

Dissemination of CARE-MEDIFLORA aims and results

- CARE-MEDIFLORA co-organised with IUCN-MED the 2nd Mediterranean Plant Conservation Week, Malta, 12-16 November 2018
- Scientific and other publications are available at the project website

PROJECT WEBSITE: www.care-mediflora.eu
Corsica

Conservation actions implemented by the Office of the Environment of Corsica

**In situ**

The Office of the Environment of Corsica (OEC) implemented *in situ* conservation actions for 7 taxa in 11 localities in Corsica in collaboration with the local management bodies of NATURA 2000 sites, local authorities (Territorial collectivity; municipalities: Fociuccia, Santo Pietro di Tenda, Serra di Scupamena, Zonza; community of municipalities of Alta Rocca) and private actors (landowners and socio-professionals).

### Taxon | Locality | Conservation actions* |
--- | --- | --- |
1. *Anchusa crispa* | Del Sale (Aleria) | Introduction of population |
2. *Astragalus alopecurus* | Gradagine (Prunelli di Fiumorbu) | Introduction of population |
3. *Centranthus trinervis* | Favona (Sar-Sulinzara) | Fence erection & placement of information signs |
4. *Elatine brochonii* | Punta Alta (Fughjichja) | Reintroduction of population, placement of protective cages & fence erection |
5. *Kosteletzkya pentacarpos* | Trinità di Fiumorbu | Control of natural vegetation |
6. *Ranunculus sylviae* | Chiuvina (Santu Petru) | Control of invasive species |
7. *Silene velutina* | Trinità di Bunifaziu | Control of invasive species |

*Short and long term monitoring of the conservation actions is included.

**Ex situ**

- 105 germplasm accessions collected from 57 taxa, stored in National Botanical Conservatory of Corsica (CBNC) Seed Bank and 50 duplicated in other seed bank (INRA)
- 40 germination experiments performed for 39 taxa
- Over 1600 plants of 24 taxa produced for *in situ* actions.


*Anchusa crispa* is a rare and endangered species, endemic to Corsica and Sardinia, protected at national level and listed in the Annex II and IV of the Habitats Directive 92/43/EEC. Specific to sandy littoral, it undergoes numerous anthropic impacts linked in particular to the tourist activities. Endangered on the eastern coast of Corsica, it was decided to create two new populations on protected sites belonging to the “Conservatoire du Littoral”. The sites of introduction were chosen according to precise criteria (ecological conditions, no threats, property rights...). Despite these optimal conditions, some factors, such as increasing strength and frequency of storms, are difficult to foresee. Thus, the stations created were almost completely destroyed by the storm Adrian in October 2018. Despite this, many seeds produced on the sites in 2018 sprouted in the spring of 2019. For the time the seedlings seem to be maintained. A monthly monitoring carried out by the Territorial Collectivity of Corsica and the CBNC follows the evolution of these new populations. This example demonstrates once again the difficulties encountered in this type of operation and the need to preserve “natural” populations.

Collaborators for conservation actions in Corsica

- National and Regional Administration & National and Regional Scientific Committees
- Local authorities (Territorial collectivity; municipalities: Fociuccia, Santo Pietro di Tenda, Serra di Scupamena, Zonza; community of municipalities of Alta Rocca)
- Management Bodies of NATURA 2000 sites
- National Institute for Agricultural Research (INRA) of San Giuliano (duplication seed bank)
- Associations (CEN Corse, CPIE Centre-Corse) and private actors (landowners and socio-professionals)
5. Lessons learnt

Conservation priorities vary at local level

Important:

- Good planning
- Adequate knowledge on species germination, propagation and growing
- Selection of suitable sites
- Collaboration with local stakeholders
- Long term monitoring to check actions effectiveness
Thanks for your attention and looking forward to seeing you at the 3rd Mediterranean Plant Conservation Week (Crete, October 2020)