

DYNAVERSITY

Majella National Park and RIBES Network (Italy)

Case study analysis

DYNAmic seed networks for managing European diversity:
conserving diversity *in situ* in agriculture and in the food chain



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PART 1: DESCRIPTION

1.1 Contextualising the case

Majella National Park is in the middle of the Abruzzo region in central Italy. The park was chosen as a case study because of its activities and its association with the RIBES network. In fact, the Park plays an important role in Crop Wild Relatives (CWR) management, as well as working to promote numerous local agricultural varieties. The Park also has its own Seed Bank, two botanical gardens and an agreement with a nursery for marketing the varieties.

Moreover, the Park is a founder of the RIBES network, a national network for *ex situ* conservation in Italy. There are several Germplasm Banks in Italy. These banks exist mostly at the local level and are responsible for preserving the seeds of plant species that belong to the native flora of each region in order to preserve their genetic heritage. The local banks that are members of the RIBES network are: *Banca del Germoplasma delle Alpi sud occidentali*, *Lombardy Seed Bank*, *Trentino Seed Bank*, *Laboratorio per la conservazione della diversità vegetale ligure*, *banca del Germoplasma di Padova*, *Banca del Germoplasma di Pisa*, *Banche del Germoplasma livornesi*, *Banca del Germoplasma di Perugia*, *Banca del Germoplasma delle Marche*, *Banca del Germoplasma della Tuscia*, *Banca del Germoplasma di Roma*, *Banca del Germoplasma della Majella*, *Banca del Germoplasma della Sardegna*, *Banca del Germoplasma di Palermo*, *Banca del Germoplasma di Catania*.

The territory of the Majella National Park itself is very much a strategic biogeographic point for the confluence of the Euro-Siberian, Mediterranean, and Balkan areas and also as a band of tension between the Mediterranean region and the Middle-European one. It contains a flora population of over 2100 between species and subspecies, over 65% of these are endemic to the region and almost 30% to Italy. Furthermore, of these 2100 surveyed, about 15% are in protected categories. The total area of the park, 74095 ha, is characterized predominantly by mountains but includes highlands with special wilderness heritage. At the moment, the Park houses over 78% of all of the species of mammals that are found in Abruzzo, and over 45% of Italian ones. Considering the lack of data on some numerous groups like insects, we can state that the Park is a real "hot spot" for biodiversity and in need of support for its conservation activities.

1.2 « Doing »

Within this great richness of flora and fauna, numerous local agricultural varieties are grown within the Park, and more than 150 wild species of cultivated plants (Crop Wild Relatives) have been identified. *Secale strictum*, for example, a cereal of great scientific interest, grows within the Park. The species is very rare and is considered an ancestor of cultivated rye². In order to improve the agronomic performance of rye varieties, having a close CWR as *Secale strictum* available is of great importance.



Secale strictum, rye CWR

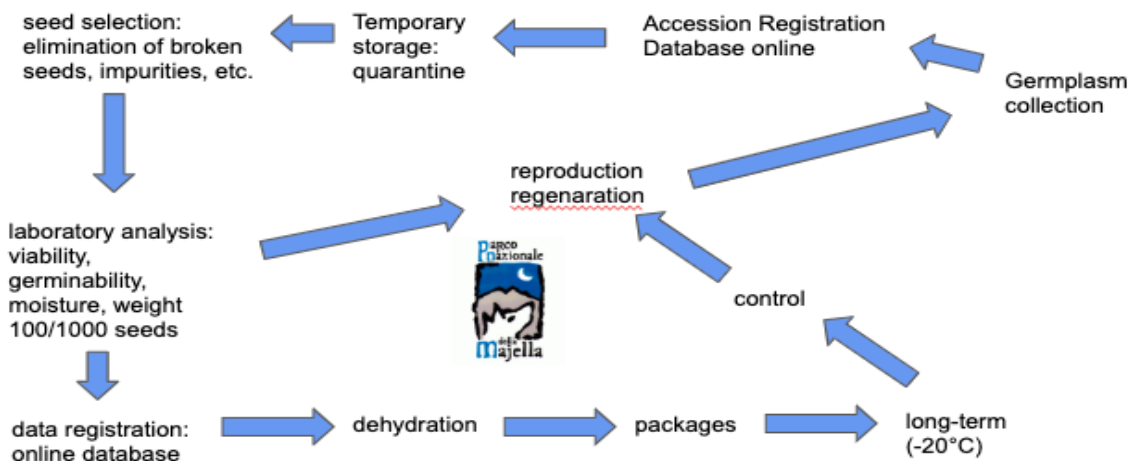
1.2.1 Properties WITHIN the initiative (closure)

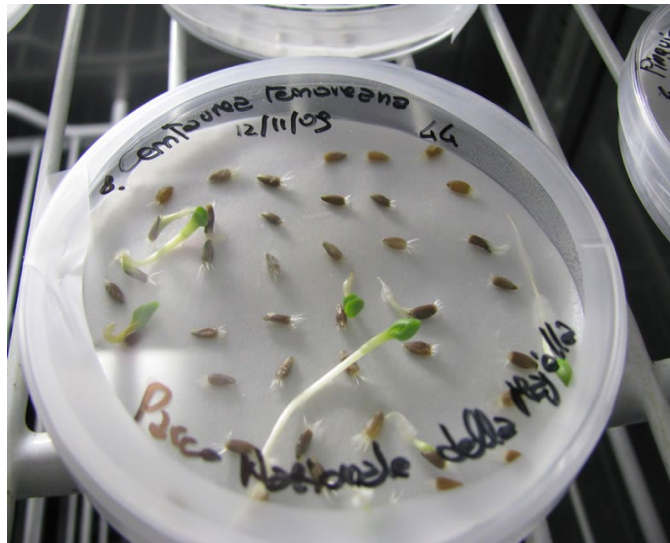
The Park Authority, in line with the FAO Treaty and the most recent Nagoya international protocol, began the preparation of a database to provide information on the consistency of CWR populations, their locations, the level of risk of each species, their morphological and genetic characteristics, etc., in order to protect these species. For some endangered species, the Park Authority also began an *ex situ* conservation programme through its associated structures, like two Botanical Gardens ("Michele Tenore" and "Daniela Brescia"), for the maintenance of collections *in vivo*. They also began their own Germplasm Bank (Majella Seed Bank) for seed conservation and research on reproductive biology.

In 2011 the nursery of the Daniela Brescia botanical garden in Sant' Eufemia obtained the phytosanitary authorization sell plants, being now allowed to market the seeds or plantlets of local flora they produce. The material (seeds and cuttings) is collected from the Park area. Most wild plants are reproduced by seed, while others are propagated through bulbs or rhizomes.

RIBES deals only with seeds of wild species under risk of extinction according to national and European directives which include the 'red lists' for endangered species. Below the scheme of the operations of the Majella germplasm bank:

SCHEME OF OPERATIONS IN THE MAJELLA GERmplasm BANK





1.2.2 Properties BEYOND the initiative (outreach)

With its small but qualified production, the Park nursery provides support for visitors, public administration, other gardens, and farms that focus on the autochthonous plants and local varieties. The main activities concern local species of interest for reintroduction. These species are increasingly in demand but are often difficult to find on the market.

Beyond the Park itself, the information also circulates through RIBES about the activities the Park does and its motivations/rationale.



1.2.3 Transformative effects beyond the initiative

This model of conservation through use (at least for some species) allows for the maintenance of the Park and the safeguard of the territory it is intended to protect.

1.3 « Organizing »

1.3.1 Properties WITHIN the initiative (closure)

As the National Park is a public body, it works in a formal way where tasks and duties are divided and distributed to different departments and offices. The different roles are assigned according to the professional background of staff members. The RIBES network, governed formally, has a Board of Directors and a Secretariat. Majella Park is associated with RIBES thanks to it having been founding member.

1.3.3 Transformative effects beyond the initiative

Every year, on the occasion of the ordinary meeting of the RIBES members, workshops are organized on specific topics and important moments of sharing occur between members. In particular, in the last five years workshops have been organized on the conservation of endangered species (Lama dei Peligni, Chieti in 2011 and Viterbo in 2014), on germplasm banks and *in situ* conservation (Rome, 2013), and on the conservation of Crop Wild Relatives (Pisa, 2012 and Bari, 2015). Less regular is the organization of courses or internships on techniques of collection and management and conservation of germplasm, which depend on the initiative of single members. One of these, for instance, a theoretical-practical internship on *ex situ* conservation and management of germplasm, was organized in 2007 by the Bank of Germoplasm of Sardinia (BG-SAR) at the Botanical Garden of Cagliari. During this event, Prof. C. Gómez Campo (Departamento de Biología Vegetal, Universidad Politécnica de Madrid) held a course on efficient long-term seed preservation. The BG-SAR also organizes an annual Ph.D. Summer School on various aspects related to *in situ* and *ex situ* conservation. There is also a theoretical/practical course for the collection of seeds of patrimonial plants, which was organized with the participation of the Regional Germoplasma Bank of the Laboratory for the Conservation of Ligurian Plant Diversity in 2009. A course for the collection of seeds of spontaneous orchids was organized by the Germoplasma Bank of Tuscia in 2014.



PART 2: ANALYSIS

2.1 Knowing

2.1.1 Properties WITHIN the initiative (closure)

To promote the RIBES activities, conferences are organized on the importance of CWR, and articles and posters are regularly presented in general or scientific journals. Workshops organized targeting the general public, which allow knowledge to be shared. The establishment of a variety register, the creation of a network of custodian farmers and the establishment of fruit orchards with local varieties have also been important measures to advance knowledge creation in and through the network.

2.1.2 Properties BEYOND the initiative (outreach)

At the national level, the activities of this Park are highly recognized. The RIBES network helps also to legitimize their activities even more broadly.

2.1.3 Transformative effects beyond the initiative

The Park Authority has implemented various initiatives for the promotion of an agricultural system compatible with the aims of conservation within the Park. The Park has also tried to reduce abandonment of rural areas, considering options

to integrate human activities into the Park environment. This has been done through different projects, such as one called Cultivating Diversity, a project that targets the recovery, conservation, and enhancement of local agricultural genetic resources in the Majella National Park.

Generally, specific support for local farmers has been applied. In the case of wolf attacks, for example, the park does not give an economic reward as reimbursement. Payment, instead, is made in sheep. In total, there are 25 farms that collaborate with the Park.

2.2 Framing

2.2.1 Properties WITHIN the initiative (closure)

The Park is a public body and operates for the public interest.

2.2.2 Properties BEYOND the initiative (outreach)

RIBES organizes and participates in conferences of the Italian Botanical Society and the Italian Ministry of the Environment on issues of *ex situ* conservation.

2.3 Networking

Each member of the RIBES network organizes individual and collective dissemination activities and existing knowledge on *ex situ* conservation is shared within and among the germplasm banks.

PART 3: SUMMARY

The main lesson learned concerns the challenge of bringing the different seed banks together under RIBES: bureaucratic complexities affecting public institutions in Italy had an impact on the construction of an effective network. In order to maintain it, we have seen how important it is to be active and propose meetings during the year.

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