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LIFE+ 2011 NAT/IT/000210 "One Deer two Islands"



Conservation of the Corsican-Sardinian Deer (Cervus elaphus corsicanus) in Sardinia and Corsica



General information and origins



The Corsican-Sardinian Deer belongs to the Cervidae family and the Cervus genre, which includes nine species distributed throughout Europe, North America and a large portion of the Asiatic continent as well as in more limited distribution zones in Northern Africa.

The Corsican-Sardinian Deer is one of the subspecies of the Red European Deer (*Cervus elaphus*).

Recent genetic studies suggest that the ancestors of the current specimens are of Eastern European origin, introduced to Sardinia at least 3,500 years ago by the first human colonisations, and that they adapted to the conditions of the island by developing a smaller size/ morphology.

We find signs of its presence in Sardinia during the Nuragic Era and reliable elements attesting to its presence in Corsica in the 5th century A.D.

It disappeared from Corsica at the end of the 1960's due to significant environmental encroachment, unregulated hunting and intensive poaching. It suffered almost the same fate in Sardinia, with three core populations maintained in the natural state, enabling the subsequent launch a programme of Corsican-Sardinian cooperation between the Regional Natural Park of Corsica and its Sardinian equivalents (azienda forestale) in order to reintroduce the subspecies to the island in 1985.

Twelve releases were organised in Corsica between 1998 and 2014, with more than 250 deer freed into the natural habitat. Since the end of the 1980's, ten new populations have been reintroduced into Sardinia.

The current population in Corsica is estimated at a minimum of 1,000 deer. The actions planned by the programme will therefore enable cross-breeding, which is indispensable for the subspecies, as well as the increase in population and the expansion of the distribution areas.

The total deer population in Sardinia is estimated at over 8,000 animals concentrated mainly in the south of the Island; the LIFE programme plans to reintroduce deer in other territories.

Programme actions



The programme LIFE «One deer two islands» conducted for the conservation of the Corsican-Sardinian Deer (*Cervus elaphus corsicanus*) in Corsica and Sardinia, includes a series of actions aimed at improving the genetic variability of current populations, creating the environmental conditions best adapted to the needs of the species, while monitoring and observation of specimens in the wild and ensuring to anticipate any potential conflicts arising in the deer/anthropogenic activities relation.

The Gulf of Orosei S.C.I. (ITB020014)



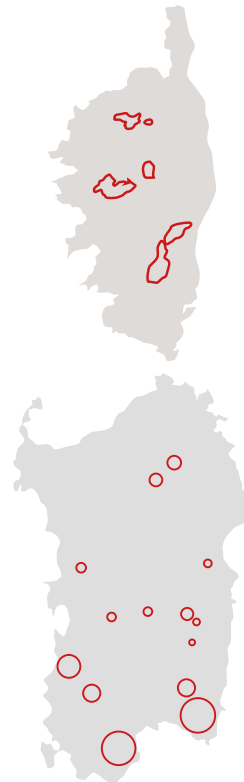
Presentation of
Natura 2000 sites
selected for the project,
where the programme's actions
will take place,
5 sites in Sardinia
and **3 in Corsica.**


The S.C.I. (28,941 ha) is located in the northeast region of Sardinia. It consists of approximately 40 km of cliffs of calcareous nature, interrupted by numerous small beaches called "codulas". The S.C.I. is characterised by woods of *Quercus ilex* with *Juniperus ssp.* The shrub stratum is characterized by *Pistacia lentiscus*, *Rhamnus alaternus*, *Phillyrea latifolia*, *Erica arborea* and *Arbutus unedo*. From birds (e.g. the *Aquila chrysaetos*, *Calonectris diomedea*, *Circus aeruginosus*, *Falco eleonorae*, and *Falco naumanni*), to mammals (e.g. the *Ovis gmelini musimon*, *Rhinolophus hipposideros*, and *Rhinolophus ferrumequinum*), to amphibians (e.g. the *Speleomantes supramontis*, and *Discoglossus sardus*) to reptiles (e.g. the *Emys orbiculari* and *Euleptes europaeus*), several important species inhabit the S.C.I.

S.I.C. Supramonte di Oliena, Orgosolo e Urzulei Su Sercone (ITB022212)



The S.C.I. (23,487 ha) is located in the northeast region of Sardinia. It consists of a plateau formed by karst phenomena ranging between 110 and 1,463 mAMSL. The most representative habitats are Holm oak forests and "Rocky calcareous wall with chasmophytic vegetation". The flora in the region is one of the richest in Sardinia. Three vegetal species are of Community Importance: *Ribes sardoum*, *Brassica insularis*, *Centranthus amazonum*. Sardinia has several endemics in common with Corsica. There are 28 species of animals of Community Importance, including: *Speleomantes supramontis*, *Ovis (orientalis) musimon*, *Accipiter gentilis arrigonii*, and *Aquila chrysaetos*.



 Zone of presence
of the deer

The Gennargentu Mountains S.C.I. (ITB021103)



Thanks to its biodiversity and natural worth, the S.C.I. (44,713 ha) has the greatest environmental value in Sardinia. It extends into the island's largest mountainous region with a series of peaks exceeding 1,800 mAMSL. Many floristic associations bear witness to the close analogies between the flora of this alpine area of Sardinia with that of Corsica's mountains. The predominant habitats are the "Arborescent matorral with *Juniperus* spp.", the "Endemic oro-Mediterranean heaths with gorse" and the forests of *Quercus ilex*. The importance of the flora lies in its exclusive endemic species, including: *the Festuca morisiana*, *Armeria sardoensis subsp. genargentea*, *Herniaria latifolia subsp. litardierei*, and *Euphrasia genargentea*. This S.C.I. contains amphibians exclusive to Sardinia: *the Euproctus platycephalus* and *Speleomantes imperialis*. Twelve species of birds listed in Bird Directive 79/409 EEC, Annex I are present in the area.

The Coscione Plateau and Incudine Mountain Range (FR9400582)



The site spans a surface of 11,228 hectares. The plateau is located in the Hyercinian region. The rocks in the area are mainly calc-alkaline granites. An acidic soil spreads over the granitic substratum. Poorly-controlled frequentation of the site by motor vehicles constitutes a serious threat for the habitats in the wetlands and encourages intensive poaching of macrostigma trouts (facilitated access for poachers at the spawning grounds).

Pig breeding practices also currently constitute a problem in the pozzines.

This site constitutes a medium mountain region ensemble, highly Euro-Siberian in appearance (beech, fir, lariciu pine, alnus cordata, and pozzines). The uneven, hilly relief of the site is characterized by numerous springs, brooks and pozzines.

In addition to its remarkable scenic qualities, this site offers exceptional floristic interest. Numerous endemic species can be found solely within this area, including the *Trisetum conradiae* and *Trisetum gracile*. Moreover, the site is home to almost all of the world populations of two plants listed in Annexes II and IV: the *Aconitum corsicum* and the *Herniaria latifolia*. Numerous species of mammals listed in Annexes II and IV of the Habitats Directive can be found at this site: the *discoglossus sardus*, the great capricorne beetle, the Hermann's tortoise, the Corsican mouflon, the Corsican-Sardinian deer and the *Macrostigma Corsican* trout.

The site hosts the largest population of deer on the island, estimated at over 300 animals, reintroduced in 1998 and reinforced in 2002.

The Mount Arcuentu and Rio Piscinas S.C.I. (ITB040031)



The S.C.I. (11,487 ha) is characterised by decommissioned mining areas. The coastal area has great naturalistic importance, with some of the largest dune fields of the Mediterranean. Rupicolous vegetation containing numerous endemic species grows on the high coasts. The sandy and rocky coastal belt has various types of underbrush and maquis of notable naturalistic value containing *Juniperus oxycedrus* and *Pistacia lentiscus*. The alpine area is characterized by forests of *Quercus ilex* and *Quercus suber*. Forty-three endemic species have been found in the S.C.I. (e.g. *the Anchusa littorea*, *Genista sulcitana*, *Romulea requienii*, *Vinca sardoensis*, and *Phleum sardoum*). Within the S.C.I., there is a large population of *Cervus elaphus corsicanus*. The site is home to a total of 14 reptile species (e.g. *Emys orbicularis*, *Euleptes europaea*, and *Algyroides fitzingeri*). Amphibians include the *Speleomantes genei* and *Discoglossus sardus*. Of the sixty-three species of birds listed in the Birds Directive 79/409 EEC, Annex I, twelve are present in the area.

The Mount Linas Marganai S.C.I. (ITB041111)



The S.C.I. territory (23,628 ha) is characterised by a predominantly mountainous morphology, with two large reliefs, that of Mount Linas with Palaeozoic, schistose and granitic rocks, and that of Mount Marganai, with schistose-carbonate rocks. The S.C.I. flora includes 950 taxa. The endemic component includes Sardinian species (e.g. *the Anchusa montelinasana Armeria sulcitana, Genista morisii and Genista sulcitana*) and Sardinian-Corsican endemic species. The natural woodland formations can all be classified under the Quercetia ilicis class. Twelve of its mammal species are protected by international conventions (e.g. *the Cervus elaphus corsicanus and Felis silvestris libyca*). Amphibians include the *Speleomantes genei* and *Discoglossus sardus*; reptiles include the *Emys orbicularis, Hemidactylus turcicus*, and *Euleptes europaea*. With regard to avifauna, the S.C.I. contains numerous species including the *Aquila chrysaetos, Hieraetus fasciatus, Accipiter gentilis, Falco eleonorae* and *Falco peregrinus brookei*.



The Rotondo Mountain Range Site (FR9400578)



The site spans a surface of 15,295 Hectares. The site belongs to the “Medium grained Corsican granite” series. Three beautiful mountain valleys grace the region: the Tavignano, the Restonica and the valley of Verghello, of great scenic beauty and biological richness (numerous habitats and species of Community Interest, Annexes I, II and IV). Tourist visits and fires can occasionally cause problems.

This mountain range is home to most of the high-altitude lakes in Corsica. The valleys are densely wooded, composed mainly of oak and beech groves. A dense maquis composed essentially of heather occupies a vast portion of the region.

Numerous species listed in Annexes II and IV of the Habitats Directive are present on the site: the *discoglossus sardus*, the great capricorne beetle, the Hermann's tortoise, the *felis silvestris*, the *gypaetus barbatus* and the Corsican-Sardinian deer. The Rotondo mountain range hosts a rich endemic flora (e.g.: *Euphorbia corsica encountered on the Campotile plateau*), as well as three plants listed in Annex II of the Directive: the *Herniaria latifolia*, the *Euprasia genargentea* and the *Brassica insularis*.

The Corsican deer was reintroduced in 2004 and currently has an estimated population of 100 head. A bolstering of the population for genetic cross-breeding purposes will be carried out at this site in 2015/ 2016.

The Green Oak Grove and Juniper Grove of Tartagine Site (FR9402004)



The site spans 513 hectares.

It is composed of soils on gneissic and granitic bedrock, characterized by little depth and dry soils except in berm and thalweg areas. Risk of fire is the main threat affecting this territory.

This site includes a number of open and wooded landscapes. The prairies and maquis represent the gentlest inclines whereas the forest occupies the steepest slopes.

This site includes several of the habitats listed in Annex I of the Habitats Directive: *the holm oak grove, the Juniperus oxycedrus subsp. Oxycedrus, and siliceous scree*.

Numerous species in Annexes II and IV of the Habitats Directive are present at the site: the *discoglossus sardus*, the great capricorne beetle, the Hermann's tortoise, the *felis silvestris*, the *gypaetus barbatus* and the Corsican-Sardinian deer.

The deer has been present at the site since around its reintroduction in 2007. In 2014, the population was bolstered in the context of a LIFE programme for genetic cross-breeding purposes. The current population is estimated at around ninety deer.



Sustainable development



Regenerating, evolving and continuing to produce. The notion of sustainability implies looking towards the future, living and acting according to rhythms that are more respectful of the natural recovery of resources. It affects each and every one of us, because adopting a sustainable lifestyle is more of a right than a duty. There are many ways of living a more sustainable lifestyle, even in the smallest acts of everyday life. Then it is up to the relevant authorities to intervene with ideas, projects and most importantly, in a concrete fashion. For example, through the Natura 2000 Network, the European Union has committed to protect the biodiversity in various sectors, from agriculture to transportation, and to ensure the survival of habitats and species in danger of extinction. Many of these protected areas in Corsica and Sardinia are those occupied by the Corsican-Sardinian Deer. The Corsican-Sardinian Deer is a subspecies of the European elaphus species; it can be found only on the islands of Corsica and Sardinia. Though abundant until the 20th century, the overall population then experienced a sharp decline. It bordered extinction in Sardinia and disappeared from Corsica in 1969. Thanks to the conservation effort of island administrators, the population is currently estimated at 8,000 deer in Sardinia and 1,000 in Corsica. This is still not enough to ensure its total conservation. Thus the LIFE + programme was born to protect rare and endangered species, like the *Cervus elaphus corsicanus*, among others. Nature, biodiversity, environmental policy and awareness campaigns: LIFE + takes the environment into account with an embrace made of daily actions and commitments.

Sustainable development, Today's Environmental Challenges



Anthropogenic activities



Energy production, land use, the exhaustion of forestry resources to develop pasture land and fields; these are only a few examples of the human activities that often damage the environment in which they are employed. Among the causes that almost led to the extinction of the Sardinian-Corsican deer was excessive deforestation, which affected the subspecies' habitat, along with acts of criminal arson that affect Corsica and Sardinia every year. The issues of energy production, waste disposal, land and maritime transport, the environmental impact of industries and factories, the upgrading of buildings and sustainable tourism should also be examined with a view to sustainability and preservation of local species and fauna.

The LIFE "One Deer, Two Islands" programme includes a series of macro-projects, aimed at monitoring and protecting the Corsican-Sardinian deer. Interventions and concrete planning actions are the first step in any project. We then proceed to the verification of results, to dissemination and organizational communication, including by means of the media and the internet. The first results have already been achieved in Sardinia in collaboration with the Corsican Forestry Agency (CFA), the provinces of Ogliastra and Medio Campidano, leading in less than a year to the release in the wild of fifteen deer originating from the Sa Portica enclosure. In Corsica, the Regional Natural Park of Corsica (PNRC), in collaboration with its local partners, the Office National de la Chasse et de la Faune Sauvage (ONCFS) [National Office of Hunting and Wild Game], the Regional Directorate for Environment, Development and Housing (DREAL), the National Forestry Office (ONF), Office de l'Environnement de Corse (OEC) [the Environmental Office of Corsica], the University of Corsica and departmental analysis laboratories, have made it possible to reintroduce 10 deer, originally from the Quenza preserve, in natura in the municipality of Moltifau.



Fauna-related resources



Corsican-Sardinian fauna boasts some species that are quite rare, if not unique, within Europe. This includes the Corsican-Sardinian deer, slightly smaller than the continental European deer and having a svelte and elegant body. In order to protect the species, we must develop a sustainable economy capable of preserving the forests and Mediterranean maquis, and create protected areas, control them on a permanent basis and monitor human action in the protected reserves. The LIFE+ programmes were born in this very context, in order to finance projects in the field of nature and biodiversity and to protect the areas of the Natura 2000 network. The activities must help achieve Community objectives relating to environment and sustainable development, public awareness, and the provision of data that can be used in the context of forest fire prevention. "One Deer, Two Islands" is responsible for the mapping of the habitats and genetic study of Deer in Sardinia and Corsica: a major risk factor of the conservation of the Corsican-Sardinian deer is precisely the loss of genetic variability, since the impossibility of genetic cross-breeding could affect the deer's DNA, thus creating serious genetic problems. Monitoring the reintroduced *Cervus elaphus corsicanus* populations represents a primordial aspect within a visionary, LIFE +-certified project.



The water resource



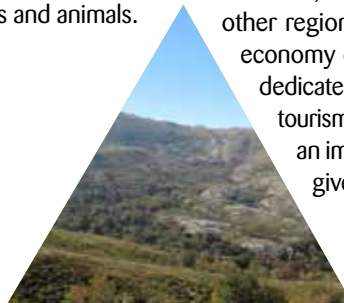
Climactic hazards and poor resource management: water in Corsica and Sardinia has always been a tricky issue. During the 1990's, drought provoked water shortages and long periods of difficulty for people who endured shut-offs and reductions in distribution. Though the weather now appears more favourable, poor management persists, accompanied by a lack of infrastructure and obsolete hydraulic lines that are causing water loss, especially in urban areas. If you add excessive water consumption to that, it reveals a touchy situation. Better awareness of water's value rests with the citizens, but also with the administrative bodies and extends to all of western civilization, still too inclined to lose or waste rather than adopt rational management in the use of resources. Another aspect of excessive water consumption is common to the southern regions, where the economy is based on the development of activities requiring water, especially agriculture and coastal resort tourism. Therefore, it is necessary to educate and raise awareness regarding a more responsible use of water resources and to choose tap water over bottled water, in order to reduce the environmental impact. But most of all, it is essential to study available resources compared to each person's needs and to preserve the provision of water for humans and animals.

The forest resource



We went from the 19th century, with its richly wooded spaces to the 20th, an arid century sterile in resources. It's what we read in traveller's accounts of Sardinia at the time. Today, the island is the first region in Italy in terms of forested surface area, a primacy owed also to the fact that it has a population density below the Italian average. Corsica, an island of 8,680 km², boasts 401,817 ha (46 % of its surface) of woods and forests. Corsica is the most heavily wooded of all of the Mediterranean islands. However, the Corsican-Sardinian green lung is unfortunately in constant danger. Fires and deforestation (often performed in order to make more space for agricultural purposes in Sardinia) reduce the extent of silent areas, and reforestation campaigns and are not sufficient to stem the problem.

The stability of an ecosystem results from a delicate balance between the animal and vegetable kingdoms, where human hands intervene to build and never to destroy, protect biodiversity and never put it in danger. This balance has been compromised in Sardinia by excessive hunting, and several species of animals are paying the consequences, including the Sardinian-Corsican deer, that inhabits the thick under-brush of the Mediterranean maquis as well as areas used for grazing sheep, cows and goats. But this isn't the only problem. Though there is a tradition of wood production, the forest resource in Corsica and Sardinia has always been underestimated, probably because most of the varieties of wood from our islands, such as holm oaks, cork trees and others, are not used for work, contrary to other regions. When you consider that the economy of both islands has always been dedicated to agriculture, pastoralism and tourism, it is easy to understand why such an important resource has never been given its proper due.





With financial support from :



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