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LIFE09 NAT/IT/000183 - COORNATA

Development of coordinated protection measures for Apennine Chamois (*Rupicapra pyrenaica ornata*)

LAYMAN'S REPORT



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The holocene is the most recent geological epoch, it started 11.000 years ago and is the one in which we are now living.

A subfossil is the remains of a once-living organism that could not complete the fossilization process because of lack of time and/or adverse environmental conditions.

During the Holocene, the Apennine chamois was distributed on the mountainous areas in the Apennines between the Sibillini Mounts and the Pollino Mount but, due to the human persecution, its range decreased more and more over the years. The presence of the Apennine chamois on the Sibillini Mounts is certified by the discovery of subfossils aged 10.000 years old. Furthermore, the presence of some historic quotes referring to "wild goats" suggests it was still present at the end of the XVIII century. On the Gran Sasso Mountain the last individual was shot at the end of the XIX century and in 1915, at the beginning of the World War I, only a remnant 30 individuals Apennine chamois population was present on the "Costa Camosciara", in the territory that would then become the Abruzzo National Park. Thanks to the conservation policies implemented, the population grew until reaching 100 individuals but, during the World War II, the population

suffered a new numeric fall (about 80 individuals in 1941 and 40 in 1949). Starting from that year, thanks to the strong conservation policy carried out by the Park during the seventies, the population experienced a new growth until reaching about 400 individuals at the beginning of the nineties. Despite the good results achieved, the presence of a sole remnant population with low genetic variability in a restricted area, strongly threatened this subspecies survival. For this reason in 1991 started the "Operazione Camoscio" aimed to capture wild individuals in the Abruzzo, Lazio e Molise National Park (PNALM) to create new colonies on the Gran Sasso and Majella Massifs, two areas that would later become the Gran Sasso e Monti della Laga National Park (PNGSL) and the Majella National Park (PNM). In 2008 started the creation of the IV colony in the Monti Sibillini National Park (PNMS) with the release of wild individuals captured in the PNALM and individuals coming from the captive breeding enclosures.

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In 2009 (when the Life Coornata Project was written) in the PNM and the PNGSL two populations of about 500 and 300 individuals respectively were present while in the PNMS the re-introduction activity had been interrupted

because of the impossibility to wild capture individuals in the PNALM, where worrying data on the demographic trend and the population structure started to emerge.

Threats

The Life Coornata Project was written to counter the main factors that threatened the Apennine chamois survival:

Limited number and size of the populations and low genetic variability;

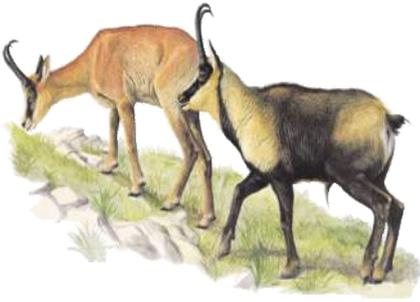
Decrease and loss of structure of the Abruzzo, Lazio e Molise National Park population;

Limited size of the Monti Sibillini National Park population and release of a number of founder lower than the established objective (30 individuals);

Presence of health risks connected to interactions with other ungulates.



THE TARGET SPECIES



Apennine chamois
(*Rupicapra pyrenaica ornata*)

When the Life Coornata Project was written most of the Apennine chamois conservation actions had already been started and successfully carried out but limiting factors potentially able to frustrate the long term chamois conservation were still present. This situation encouraged the 5 Parks of the central Apennines interested (PNALM, PNM, PNGSL, PNMS and the PRSV-Parco Regionale Sirente Velino) to meet and prepare all together a new Life Nature Project, committing to Legambiente ONLUS the coordination of the communication activities. The Project was structured in order to counter the main threats to this subspecies conservation referring to the indications contained in the National Action Plan for the Apennine chamois (PAN). However from 2001, year of PAN publication,

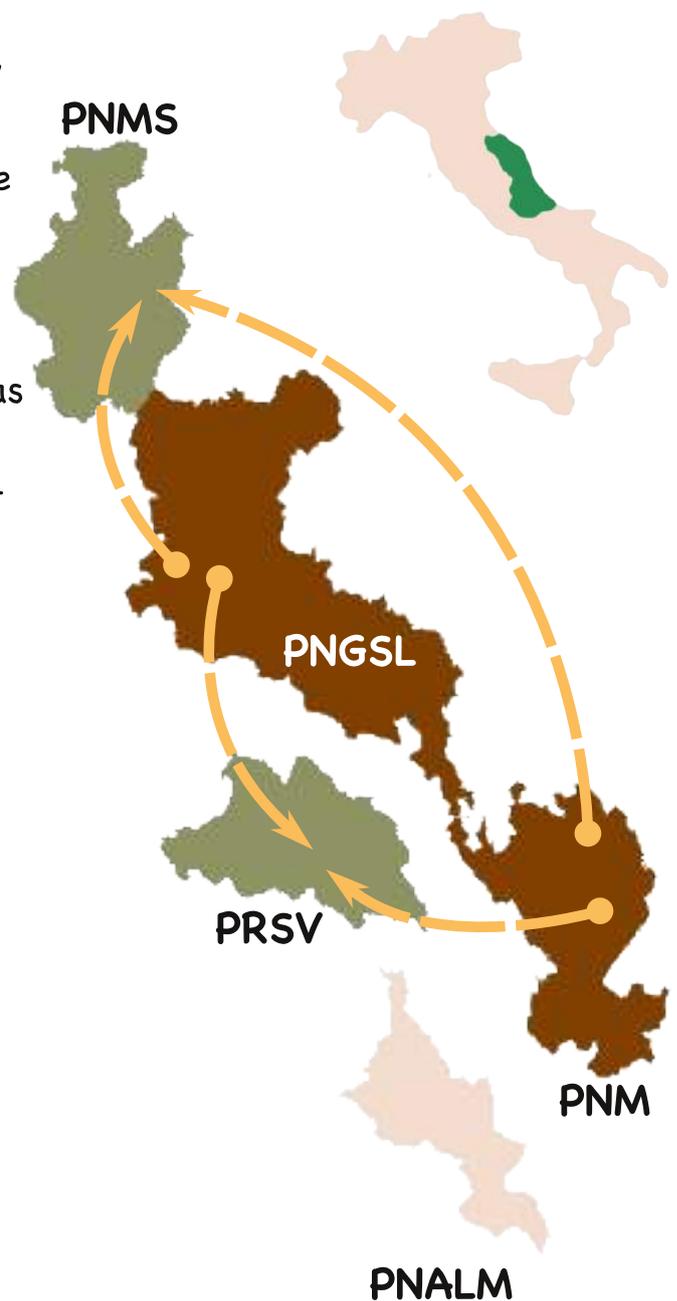
to the year of the Life Coornata drafting (2009) several changes happened in the features of the chamois populations and this fact necessarily determined a re-examination of the actions to be carried out, albeit keeping in mind the general objective to reach a total size of at least 2000 individuals distributed in 5 populations geographically isolated. The original programme foreseen in the PAN was thus modified and turned into the general programme of the Life Coornata Project aimed to act in two main directions:

- 1) To complete the re-introductions in the PNMS until reaching the established minimum number of releases (30 founders) and to start the re-introduction in the PRSV with animals coming from the captive breeding enclosures as well as wild individuals captured in the PNM and PNGSL;
- 2) To implement extraordinary measures for the conservation of the historic Apennine chamois population in the PNALM.

The Life Coornata Project has been the first in which all the Parks interested by the presence of the chamois worked together to preserve this subspecies. The concrete conservation actions have been thus accompanied by important actions aimed to coordinate the activities and share the methods, thanks to which it has been possible to develop a unique conservation strategy for all the existent populations.

Objectives...

- 1) To implement a coordinated management of all the Apennine chamois nuclei;
- 2) To complete the creation of the IV population in the Monti Sibillini National Park through the release of 15 individuals;
- 3) To start the creation of the V population in the Sirente Velino Natural Park through the release of at least 8 individuals;
- 4) To implement a special monitoring to draft an Intervention Plan aimed to solve the criticalities emerged in the PNALM population;
- 5) To improve the health management of livestock grazing in the chamois range;
- 6) To spread the Project results and to augment the public awareness about this chamois subspecies.

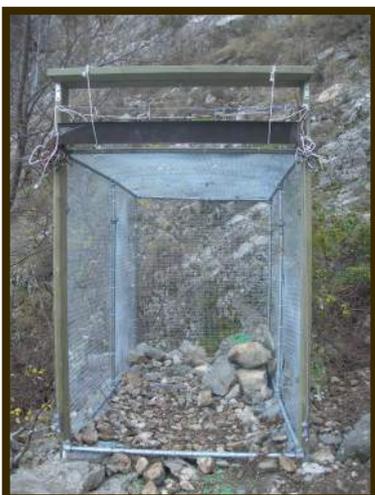


...and a prerequisite!

To realize for the first time wild chamois captures in the PNM and the PNGSL.

Innovations in the Apennine chamois history

During the Life Coornata Project the wild chamois captures have been implemented using new methods, never used before for the Apennine chamois. Particularly three mechanical-immobilization structures have been used: the



up-net enclosure, the box trap and the "modified" box trap. The **up-net enclosure** is a square made of poles to which a counterweight-pulley mechanism is anchored. When the trap is activated with a remote control, the counterweight-pulley mechanism raises a soft net against which chamois get caught when trying to escape from the trap. The **box trap** is a sort of cage, constructed with pipes and a wire netting. At its entrance is positioned a structure equipped with a descending soft net released with a remote-activation system. The **modified box trap** is a "natural" trap: the structure equipped with the descending soft net is not a part of a metal structure but is positioned at the entrance of caves habitually used by chamois. The box traps

structures are inspired to the models used in the Alpi Marittime Natural Park and the Paneveggio Pale di San Martino Natural Park.

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In all the Parks involved in the Project, treatments against parasitic and, when necessary, vaccines have been administered to the livestock grazing in the chamois range. The administration of the classic synthetic substances has been substituted, when possible, by the administration of **phytoterapic treatments**. These have several advantages for the animals, for the farmers (for example they don't require any pause to use milk and meat) and also for the environment as they have a lower toxicity level and a lower persistence in the environment.

All the chamois released in the PNALM, in the source areas of the PNM and PNGSL and in the new populations of the PNMS and the PRSV, have been equipped with **ear tags and radio-collars** in order to make them recognizable during the observations and to remotely locate them with the telemetry technique.

All the activities have been developed basing on shared methodologies, provided in specific protocols jointly drafted:

- **Capture protocol**
- **Monitoring protocol**
- **Protocol for the choice of suitable herds/areas to capture for translocation**
- **Pellet count protocol**
- **Protocol for the management of captive breeding enclosures**



Wild chamois captures in the Majella National Park and the Gran Sasso e Monti della Laga National Park

A total of 27 wild chamois were captured in the PNM and 17 in the PNGSL of which 11 were released in the PNMS (against the 10 foreseen in the Project), 13 were released in the PRSV (against the 4 foreseen in the Project), 7 were released in situ in the PNM and 9 were released in situ in the PNGSL. Animals released in

reproductive potential was not compromised and that the **kid** survival was not affected, demographic parameters have been quantified for each herd. Furthermore the herd space use has been analysed in order to verify the absence of a permanent disturb caused by the capture event.

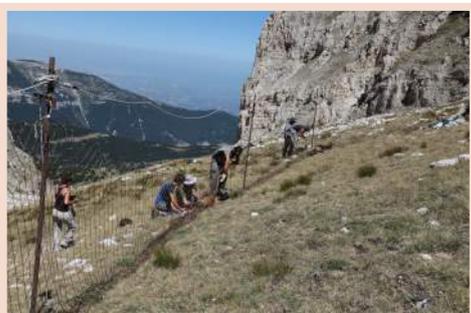
No negative effects have been observed neither in the PNM nor in the PNGSL and from the Project beginning until now the PNM population increased from a minimum of 500 to a minimum of 1.100 individuals and the PNGSL population increased from about 300 to about 600 individuals.



The **telemetry** is a monitoring technique that allows to remotely locate an animal through the use of a radio signal (radio-telemetry) or of a GPS device (GPS telemetry).

A **kid** is a chamois born-in-the-year (between May and June) and, thus, without horns.

situ have been monitored through direct observations, **radio-telemetry** and **GPS-telemetry** to verify the absence of possible negative impacts of the captures on the herd from which individuals were taken. In order to verify that the herds were not fragmented, that the



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The releases in the Monti Sibillini National Park and in the Sirente Velino Natural Park

In the PNMS **18 individuals have been released** (5 males, 13 females) against the 15 foreseen in the Project. Eleven were wild chamois captured in the PNM and PNGSL and 7 were animals coming from captive breeding enclosures. With the release of the above-mentioned individuals the objective of 30 founders released has been achieved and this is considered to be enough to guarantee the long-term conservation of the PNMS nucleus. In 2014 the PNMS chamois population reached 72 individuals and the first evidences of a spatial expansion emerged during the monitoring activity. The creation of the V population in the PRSV has been realized passing through a preliminary phase and an operational phase. During the preliminary phase the existing **suitability plan** has been updated and improved, the

release site has been individuated, a release programme has been drafted and several activities have been implemented to counter the possible limiting factors individuated. During the operational phase, started in July 2013, 13 chamois wild captured in the PNM and PNGSL and 4 individuals coming from the captive breeding enclosures have been released for a total of 17 individuals (8 males and 9 females) against the 8 foreseen in the Project. During the first birth season after the firsts releases (spring 2014) **5 kids born** and, as only one individual died 10 days after the release for a predation, at the end of 2014 21 chamois were present.



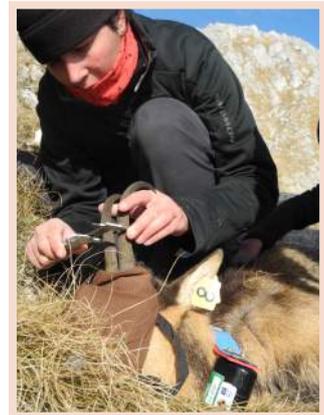
The special monitoring in the Abruzzo, Lazio e Molise National Park

The causes of the problems emerged regarding the demographic trend and the population structure, have been investigated with a multi-disciplinary approach in collaboration with university centres. In order to augment the efficiency of data collection and in order to collect the highest number of information, 20 chamois have been captured and monitored with the use of collars. Data collected have been thus analysed as follows:

- necropsies and laboratory analysis on chamois carcasses and on other wild ungulates carcasses potentially able to transmit pathogens (red deer, roe deer, wild boar);
- analysis of the spatial overlap between chamois and other wild ungulates (red deer and roe deer) and grazing livestock;
- analysis of the dietary overlap between chamois and red deer;
- analysis of the structure and estimation of the demographic parameters for each herd and for the whole population.

The data analysis allowed to understand that the situation in the

PNALM is determined by multi-factorial causes and a specific **Intervention Plan** has been drafted to counter all the limiting factors emerged.



Implementation of a special health monitoring



The presence of grazing livestock can be a limiting factor for the Apennine chamois populations, not only because it's a potential spatial and trophic competitor but also because it's a potential vehicle of pathogens. Currently no compulsory preventive measures exist to counter the pathogens potentially dangerous for wild animals, neither if the grazing activity is developed in a protected area. For this reason during the Life Coornata Project, have been developed activities aimed to administrate specific treatments (against parasitic and vaccines) in the farm working inside the chamois ranges. Additionally, a campaign has been developed aimed to raise awareness about the necessity of implementing such specific treatments, addressed both to farmers and health surveillance authorities. Even though the participation of farmers to the special programme carried out was entirely on a voluntary basis, with the Life Coornata Project until 100% of the potentially interested farms have been involved and 91% to 100% of the livestock heads potentially in contact with chamois have been treated.

Raising awareness and Project results dissemination

Despite the Apennine chamois is one of the taxa with the most conservation value in Italy, the public poorly know it and, often, confuse it with the Alpine chamois (*Rupicapra rupicapra rupicapra*) or with other wild ungulates. For this reason during the Life Coornata a well-structured communication programme addressed to different targets has been developed. A website has been realized (<http://www.camoscioappenninico.it>) for the dissemination of news and newsletter, for the sharing of Project results and for the dissemination of information about chamois history and

biology. An environmental education programme has been realized for primary schools, an educational documentary as well as leaflets and other dissemination material have been realized and, finally, a press tour has been realized to involve journalists and raise awareness. At the end of the Project a final congress has been organized, the Chamois International Congress, during which for the first time data about all the 10 chamois subspecies existent have been presented. The proceedings of this Congress can be freely downloaded from the Project website.



At the end of the Life Coornata Project (2014), and thanks to the activities carried out during its development, the conservation status of the Apennine chamois is considerably enhanced compared to 2010, year of Project starting. The general objective of the

National Action Plan for the Apennine chamois has been achieved as more than 2400 chamois are now present in 5 populations geographically isolated. However some threats and limiting factors still exist and will be countered during the after-Life period:

Threats/limiting factors still existing

Actions

Low number of founders released in the PRSV

Release in the PRSV of at least 13 founders captured in the PNM and PNGSL

Low number of individuals in the PRSV

Strict monitoring of the PRSV population

Presence of limiting factors in the PNALM

Implementation of all the measures foreseen in the Intervention Plan

Low number of individuals in the PNMS

Strict monitoring of the PNMS population

Presence of risky health interactions

Continuation of the special prophylaxis programme



The increasing number and dimension of the Apennine chamois colonies, beyond the direct benefits on the target species, play an important role in favouring the ecosystem balance. First of all the Apennine chamois favours the conservation of secondary pastures through its foraging activity as grazing it contributes to keep the vegetation low and the pastures opened, countering the wood re-colonization process. Second the Apennine chamois contributes to preserve the secondary pastures ecosystem also through the faeces produced: chamois faeces fertilize the pastures and contribute to augment the trophic resources used by the invertebrates which are, in turn, eaten by several vertebrate species.

The secondary pastures conservation, beyond being important itself, favours the preservation of other species like the red-billed chough (*Pyrrhocorax pyrrhocorax*), the Apennine rock partridge (*Alectoris graeca orlandoi*), the wood lark (*Lullula arborea*), the lesser kestrel (*Falco naumanni*) and several orchids species.

Finally the increasing number and dimension of the Apennine chamois colonies produces an

increasing of biomass availability in the trophic net to which belong different species of predators and scavengers as the Apennine wolf (*Canis lupus italicus*), the Apennine brown bear (*Ursus arctos marsicanus*) and the golden eagle (*Aquila chrysaetos*).



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Natura 2000 is the main tool of the European Union for the biodiversity conservation. It is an ecological net diffused in the whole Union territory, instituted with the Habitats Directive 92/43 CEE to guarantee the long term preservation of natural habitats and rare or threatened flora and fauna species. The net is constituted by Special Areas of Conservation (SACs), previously individuated as Sites of Community Importance (SCIs), instituted by the EU Members according to the Habitats Directive and includes the Special Protected Areas (SPAs) instituted according to the Birds Directive 79/409 CEE. The net can benefit of the main EU financial tool for climate and environment: the Life Programme. Since 1992, year of institution of the Life programme, four phases have been developed (Life I: 1992-1995; Life II: 1996-1999; Life III: 2000-2006; Life+: 2007-2013) during which 4,171 projects have been co-financed contributing approximately 3.4 billion euros to the realization of projects aimed to protect the environment and climate. The Life+ programme, during which the Life Coornata Project has been developed, fini-

shed in 2013 and the day 20 December 2013 the new Life programme was published for the period 2014-2020. This new programme includes two strands, the Environment strand and the Climate Action strand for a total budget of 3.4 billion euros. Through this financial tool the European Commission fixes the general objective to specifically support the EU projects, having an added value at the European level, for the implementation, updating and development of the EU policy and laws regarding the environment.

More information about the Life financing tool, its regulation and the projects developed with its support are available on the website

**[www.ec.europa.eu/
environment/life](http://www.ec.europa.eu/environment/life).**





The Life Project 09 NAT/IT/ 000183 Coornata for the Apennine chamois conservation was coordinated by the Majella National Park and had a total budget of 3,141,756 euro. The European Union supported the Project with a 72% co-financing for a total of 2,262,064 euro, the remaining 28% has been cofinanced by the Project beneficiaries: Majella National Park, Abruzzo, Lazio e Molise National Park, Gran Sasso e Monti della Laga National Park, Monti Sibillini National Park, Sirente Velino Natural Park, Legambiente. The Project started on September 2010 and ended on September 2014.

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