

Connecting wilderness in the Central Apennines

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In the centre of Italy exists a wild and highly biodiverse region, the Central Apennines. Numerous national parks and nature reserves have been established to protect the mountainous landscape with its forests and prairie-like plains. The [Majella Wilderness](#), a member of the European Wilderness Network, is located in the eastern part of this region. The ecosystems of the Central Apennines are characterized by high densities of wildlife including large predators, scavengers and large populations of red deer, roe deer and wild boar. In particular, the region is home to the Marsican brown bear (*Ursus arctos marsicanus*), assessed by the Italian IUCN as a critically endangered subspecies of the Eurasian brown bear. Two organisations, [Salviamo l'Orso](#) and [Rewilding Apennines](#), have joined forces to minimize human-wildlife conflicts in the anthropogenically shaped zones situated in between the protected areas. This should enhance wildlife migration, especially the expansion of the endangered Marsican brown bear population.

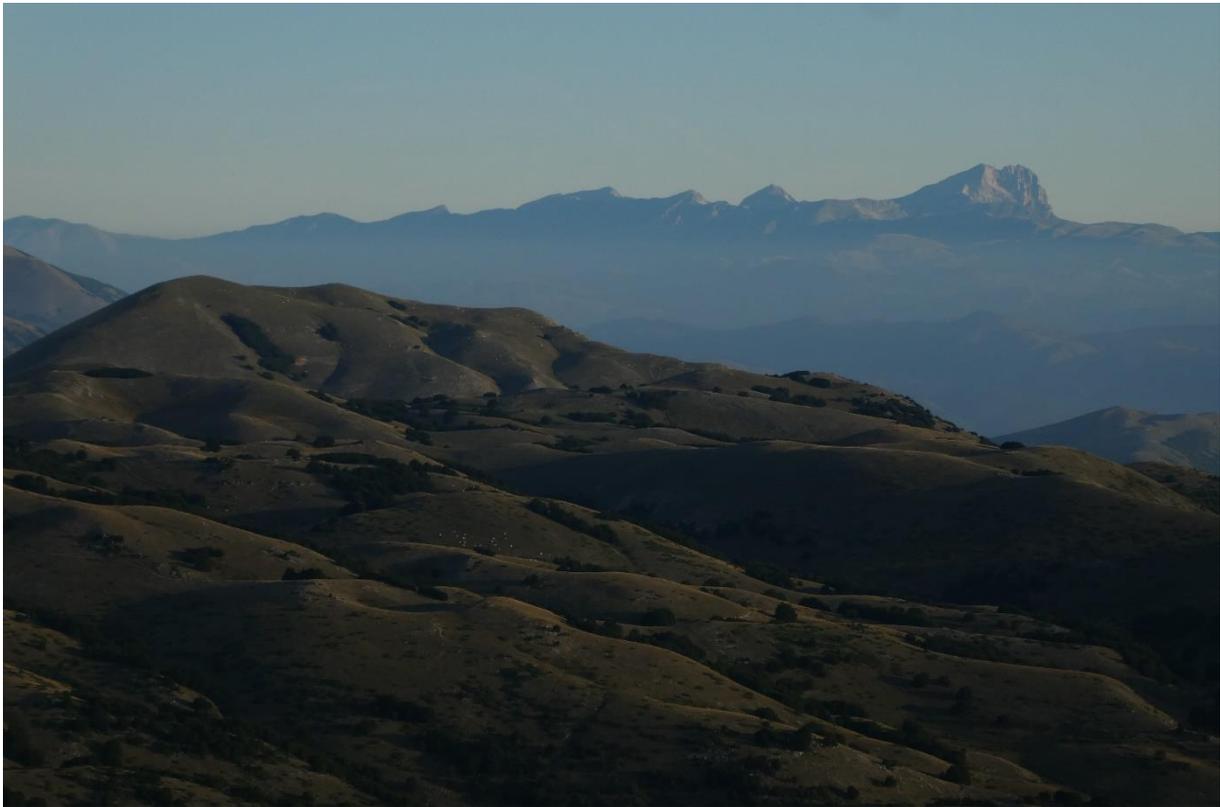


Image 1: Corridor zone between two protected areas. Today the abandoned pastureland serves as wildlife corridor.

Salviamo l'Orso and Rewilding Apennines

Rewilding is a method of restorative ecosystem management, which aims to catalyse landscape transformations by initiating ecological processes. This approach includes species conservation and reintroductions as well as restorative landscape interventions. In Europe, the organisation [Rewilding Europe](#) has been operating in this field since 2011, setting up eight rewilding pilot areas in which both wilder landscapes and nature-based economies are developed. One of the pilot areas is situated in the Central Apennines where the local partners Salviamo l'Orso (Italian for "Let's save the bear", SLO) and Rewilding Apennines (RA) aim to improve human-wildlife coexistence.

Established in 2012, SLO reduces anthropogenic threats to Marsican brown bears to facilitate the endangered population to increase. In order to minimize human-bear conflicts, the team works on livestock damage prevention, road ecology measures and communication options. Also, the young organisation Rewilding Apennines (RA) is concerned with the protection of the Marsican brown bears, but also with the spread of wildlife in general. In the forthcoming years, the team plans to restock populations of chamois, vultures and white-clawed crayfish. Moreover, RA develops related business facilities such as ecotourism to co-finance the rewilding operations.



Image 4: Road ecology measures to prevent human-wildlife incidents

Connecting wilderness through human-wildlife coexistence corridors

Today the distribution range of the Marsican brown bear is mostly restricted to [the Abruzzo, Lazio and Molise National Park](#). Since the isolated population of around 50 to 60 bears is not viable in the long term, SLO and RA intend to support the bear's dispersal to other protected areas along five calculated coexistence corridors (see Figure 1). These coexistence corridors are large areas in settled regions that connect the core zone of the bear population with other potential distribution ranges. By that, the bear should function as an umbrella species for other large mammals. In the coexistence corridors, the

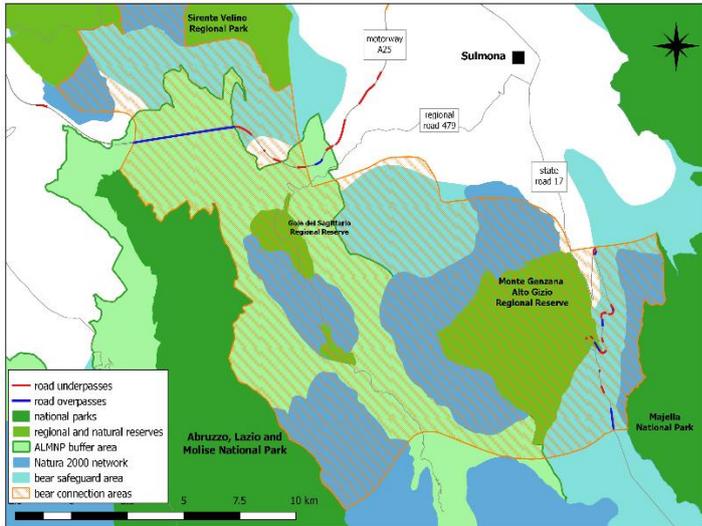


Figure 2 8: The bear's corridor map in the Central Apennines: One of the five corridors with potential bear habitat calculated with QGIS (S. Giovacchini, *Salviamo l'Orso*). The settled areas are connecting the core zone of the bear population in the Abruzzo, Lazio and Molise National Park (ALMNP) with other protected areas. The five corridors are the operation area for RA's and SLO's coexistence measures.

team implements road measures to reduce the risk of wildlife-vehicle collisions and develops so called Bear Smart Community models similar to approaches in Northern America.

Despite the critical conservation status, there still have been incidents of poaching and poisoning of bears in the recent years. Outside the national parks the tolerance of wildlife is much lower. Often residents do not directly benefit from tourism and have to deal with wildlife conflicts instead. To date, no case of aggression towards humans has been reported for the Marsican brown bear. However, as an opportunistic animal, the bear also feeds on human garbage and attacks livestock. Therefore, SLO and RA are introducing

simple but effective measures to avoid conflicts caused by bear damage ("bear smart"). For example, they built electric fences and bear-proof metal gates for both livestock owners and beekeepers. The team provides bear-proof organic waste bins in villages, while pruning fruit trees in abandoned land in mountain valleys. In this way, bears should be attracted to migrate through the settled corridor areas, finding natural food sources distant from villages. The organisations' efforts show visible evidence that predators can live alongside humans with a minimum of conflicts. In 2018, bear-induced-damage in 100 farms in the Genzana bear smart community located in one of the coexistence corridors was reduced by 97% as compared to 2014.



Image 1: Marsican brown bear in a corridor zone

To improve the habitat quality for wildlife in coexistence corridors, the team closes dangerous water wells and removes barbed wire as well as poaching snares. Regularly the team vaccinates sheep dogs to prevent disease transmission to wild carnivores. Furthermore, a lot of public outreach work is carried out, including public information and environmental education. RA and SLO also develop small businesses by labelling local products with the charismatic bear, such as the “bear’s honey” produced in beehives equipped with bear damage protection measures. It is planned to further develop this concept of bear labelling to increase the economic value of wildlife for local communities.



Image 2: Herd of red deer in the Abruzzo mountains

Rewilding is key for wilderness expansion in Europe

In a densely populated Europe, human acceptance limits the extent of wilderness. Ongoing habitat fragmentation through transport infrastructure and urban sprawl is a major threat to wildlife. To counteract biodiversity loss, remaining European wilderness must be both protected and connected. The experiences in the Central Apennines show that the future of endangered species such as the Marsican brown bear depends on ensuring coexistence with humans. Hence, rewilding should always mean to work on solutions for preventing human-wildlife conflicts. Rewilding business opportunities can create dynamic socio-ecological systems in settled areas next to wilderness. Only in this way, people may respect and truly value their wild homelands, allowing European wilderness to expand.



Image 5: Livestock protection with electric fences to prevent bear damage