

Wolf–Human coexistence in the Alps: the LIFE WolfAlps EU project

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Abstract

During the last 30 years, a natural return of wolves has been recorded at local, national and international levels over several mountain ranges in the Alps and, more recently, in both hilly areas and plains in Europe. Accepting the natural return of wolves in human-dominated landscapes is a major challenge, especially in places where memories and experience of coexistence have been lost. After the success of the LIFE WolfAlps project, which ended in May 2018, the European Commission has approved and co-financed LIFE WolfAlps EU (2019–2024), a new project to support wolf–human coexistence at European and pan-Alpine scales. As the expansion of the wolf population knows no administrative boundaries, the presence of the species requires actions effective at local level to improve its coexistence with humans on an international scale. The new, international project works to support local communities in the prevention of wolf attacks, and decision makers in the adoption of the best possible solutions to improve management of wolves, thus improving public acceptance of their expanding distribution and populations, notwithstanding the potential risks. Concrete actions are being implemented to involve all stakeholders interested in and affected by the wolf's presence, in order to make human–wolf coexistence possible across borders, traditions and beliefs.



Figure 1 – Livestock farming in the Alps. © C. Sonvilla_Sonvilla-Graf OG

Introduction – An international approach to a natural transboundary expansion

The wolf population is naturally expanding in the Alps and knows no boundaries: the presence of this large carnivore requires actions coordinated on an international scale and effective at a local level to improve its coexistence with humans and their activities.

After the success of the European LIFE WolfAlps project (2013–2018), which received the Best LIFE Project Award in May 2019, the European Commission approved and financed LWA EU, a new project that, for the first time, works on a European and pan-Alpine scale for the improvement of wolf–human coexistence through a participatory approach, in order

to guarantee the long-term conservation of the transboundary wolf population.

The LIFE WolfAlps EU (2019–2024) project (LWA EU) mobilizes institutions and organizations from Italy, France, Austria and Slovenia which work to mitigate the impact of the wolf on livestock farming, to find a balance between the hunting world and the presence of predators, to fight poaching, to control wolf–dog hybridization, to find and disseminate the best strategies for coexisting with the species in the hilly areas closest to inhabited areas, and to disseminate accurate information to the public based on scientific data.

The presence of the species is still highly controversial as it is associated with a wide range of conflicts with human interests, ranging from depredation on domestic livestock and pets, competition with hunters for game, and the fear of potential attacks on humans. There is a deeply rooted hostility towards the species in human history and culture (Treves & Karanth 2003); rumours, legends and myths have helped to propagate a collective belief in the dangers posed by wolves (Linnell & Alleau 2016). Hunting, trapping, poisoning, issuing edicts of condemnation or placing bounties on the heads of wolves all reflect the hostility that humans have nurtured – and to some extent still nurture – towards the wolf. This also applies to other large predators because of a sense of competition, and feelings of fear and suspicion. In Europe until the end of World War II, when significant amounts of higher-altitude agricultural land (arable land, meadows and pastures) fell into disuse because of the migration of the rural population towards urban regions, the landscape context and agricultural practices were very different (Cimatti et al. 2021; Linnell & Alleau 2016). Intense human pressure on the landscape, and relatively little forest and little wild prey, led to high predation pressure on livestock by carnivores (Linnell & Alleau

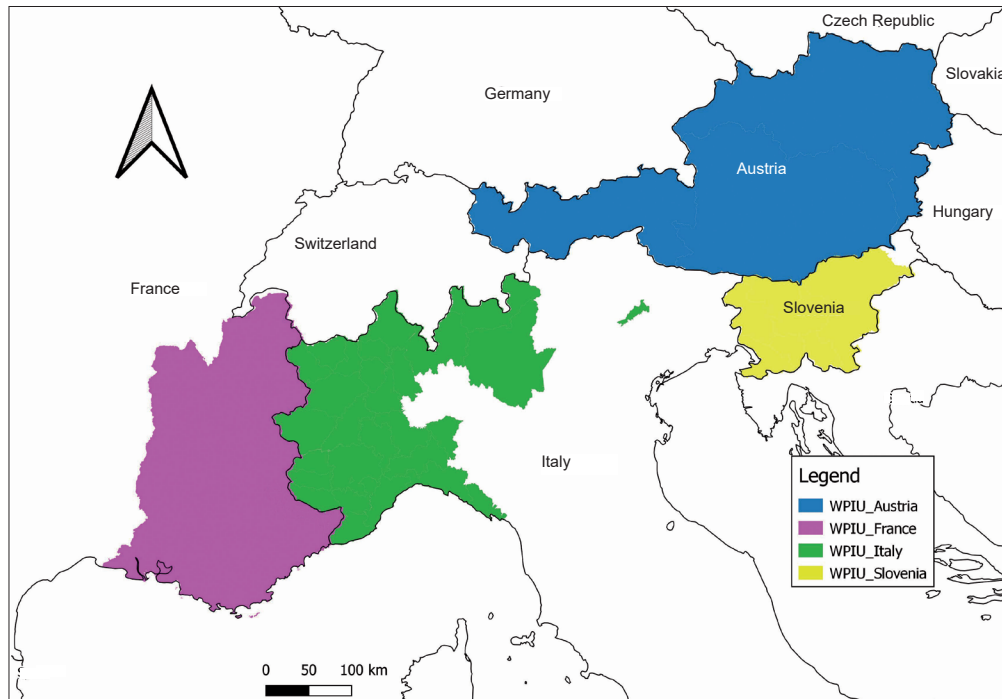


Figure 2 – Distribution of Wolf Prevention Intervention Units (WPIUs) across the Alps in the LWA EU territory. © Modified from Menzano et al. 2020.

2016). After two centuries of active persecution, at the beginning of the 20th century the wolf became extinct throughout central and northern Europe, surviving in Italy, at their historical minimum, with less than 150 individuals in two isolated areas in the Southern Apennines (Boitani 1992). From the mid 1970s onwards, the tables have been turned, and the *evil* wolf has become a *saint* in the minds of most of the general public (Mech 2012). In Europe, human–carnivore relations have been brought into focus (Patterson et al. 2021) by the natural expansion of large carnivore populations (Chapron et al. 2014; Cimatti et al. 2021; Marucco et al. 2022), land abandonment in rural areas (Bürgi et al. 2017), the growing rewilding movement (Ceausu et al. 2015), and contextual inclusion of the species under national and international protection lists, such as Appendix II of the CITES Convention on International Trade in Endangered Species of Wild Fauna and Flora in 1977; Appendix II of the Berne Convention on the Conservation of European Wildlife and Natural Habitats in 1979, and Annexes II and IV of the Habitat Directive in 1992. Attitudes are characterized by increased polarization between those laypeople who revere the animal and those who revile it. Indeed, with the recovery of the wolf population, there has been an increase in negative economic impacts and in social conflicts associated with the species (Nie 2003), as it represents “*a change in a system that had taken many, many years to build up*”, John Linnell claims (Nijhuis 2019). Attitudes towards carnivores are not determined merely by any direct costs that ensue, but are the product of a dynamic and complex web of individual, societal and cultural factors (Dickman et al. 2013). Large carnivores

often become symbols of incompatible human–nature worldviews, primarily those of people who uphold traditional rural practices, and those with urban lifestyles (Pooley et al. 2017; Ericsson et al. 2018).

Due to the transboundary character of the wolf population, in the frame of the LIFE WolfAlps EU project a geographically extensive network of partners has been constituted in order to cover the wolf’s Alpid-wide distribution range, and to minimize the high institutional fragmentation that poses a severe threat to the conservation of species such as the wolf that have the potential to expand their territory over considerable distances. Twenty partners and more than 100 supporters are participating in the project, coordinated by the Alpi Marittime Protected Areas Management Body. Of the 20 partners, two are Slovenian, two Austrian, two French and 14 Italian. The partnership is composed of public institutions, mainly natural parks that manage alpine territories and constitute a fundamental connection with local communities, universities, museums, and other regional and national authorities involved in natural resources and land management. With the new LIFE project, a more comprehensive and transnational conservation and management approach has been implemented, although the wolf population is still at very low densities or absent from most of the Eastern Alps. Such a transnational approach leads to periodic confrontation among partners on the diverse conservation issues that may be crucially important in areas of consolidated wolf presence, but less crucial where the wolf has only recently arrived. As an example, illegal poisoning and hybridization with dogs are found to different extents more in Italy, France and

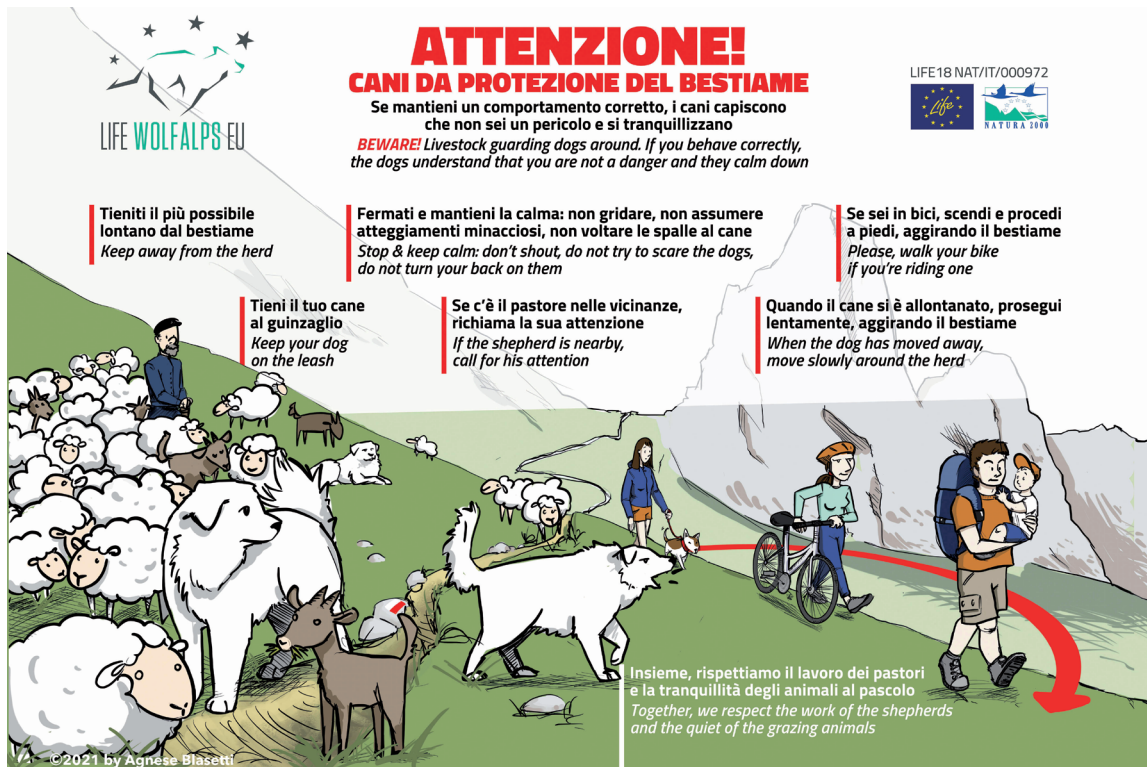


Figure 3 – LIFE WolfAlps EU project: Livestock guarding dog information panel.

Slovenia. Direct fear for personal safety is felt more in these areas than where wolves are less present, for example in Austria.

The nine intervention axes of the LIFE WolfAlps EU project

The LWA EU project presents an integrated trans-boundary approach, designed to overcome the current fragmented practices of wolf management (at both local and national levels) and with the aim of achieving for the first time in Europe overall population-level conservation, management and surveillance. The project is constructed around nine thematic axes (see <https://www.lifewolfalps.eu/en/axes-of-intervention/>):

1. *Damage prevention*: active support to farming activities through the Wolf Prevention Intervention Units (WPIUs), formed to intervene in the field to help livestock breeders prevent wolf attacks, finding individual solutions and implementing prevention systems, supporting breeders to access compensation and prevention measures, as well as in the correct use of livestock guarding dogs.
2. *Wolf population monitoring*: estimates the status of the entire alpine wolf population considered as a biological unit according to the *Guidelines for population level management plans for large carnivores* approved by the European Commission.
3. *Anti-poaching*: fighting illegal killing to ensure the long-term conservation of a viable wolf population in the Alps and to limit the collateral damage caused by the use of poisons for other wild and domestic animals, by establishing dedicated anti-poison canine units and creating shared protocols for intervention.
4. *Hybridization control*: limiting one of the most serious threats to the conservation of the genetic identity of the wolf, i.e. anthropogenic wolf-dog hybridization due to the mating of wolves with free-ranging dogs.
5. *Stakeholder involvement*: implementation of platforms for dialogue and meetings through which the concerns, needs and requests of stakeholders can be addressed in order to activate a virtuous circle in which sharing the responsibility for wolf conservation can generate positive repercussions on all actors involved.
6. *Communication*: disseminate in a clear, objective, transparent way data on the wolf's presence and its impact on domestic animals and wildlife, as well as the results achieved during the project, improving the scientific knowledge available on the wolf and on human-wolf conflicts.
7. *Education*: definition of education programmes dedicated to increasing knowledge of wolves and promoting coexistence. The project will explore the attitudes of critical interest groups and the general public towards wolves. This information will be used in targeted education initiatives to create a lasting base of environmental literacy, stewardship and problem-solving skills for today's young generations.
8. *Ecotourism*: development of responsible and wolf-friendly tourist initiatives to allow visitors and lo-

cal communities to discover in a concrete way what coexistence between large carnivores and breeders means.

9. *Interactions among prey, predators and human activities:* development of a study across the Alps on the dynamics of the prey–predator relationship in the presence of human activities such as hunting, tourism and livestock breeding, in order to make recommendations on how to consider the predation of wolves on wild ungulates in human-dominated landscapes.

Two and a half years after the start, the LWA EU project is now in its full implementation phase; all concrete actions have been initiated. The development and fulfillment of some actions might be extremely challenging in some cases, as they might require the collaboration of institutions or other bodies that are not willing to be involved in the project. In these cases, it is important for the project partners to find a solution. This generally involves the organization of several meetings with all parties to reach an agreement on the topic. The main project lines are reported below.

1. Damage prevention

As a consequence of the increase in population abundance and distribution, concern over the persisting and potential conflict between wolves and livestock breeding is one of the project's main lines of intervention (Figure 2). The WPIUs were established for this reason, and there are now 42 units across the Alps: 28 in Italy, two in France, seven in Slovenia and five in Austria. They are composed of personnel from the Public Veterinary Services, *Carabinieri Forestali* (military unit of the *Carabinieri*), provincial police officers, members of agricultural machinery syndicates and park rangers. Their role is to support professional and amateur breeders before and after wolf attacks (Figure 4). Building a relationship of mutual trust is fundamental for the good development of activities and in order to involve more and more breeders in the application of attack-prevention measures. A lot is being done, and the WPIUs are working constantly to improve their strategies. These strategies include awareness campaigns aimed at tourists, explaining the presence of livestock guarding dogs in pastures during the summer season, and informing tourists on how to behave appropriately (Figure 3).

2. Wolf population monitoring

Wolf population surveillance is ongoing in all the countries involved, and a number of reports have been produced on population abundance and distribution estimates. The complete overview on the wolf population at Alpine and Piedmont-Ligurian Apennine levels will be available by the end of 2022; in the meantime, recent national reports show an increase in abundance and distribution in the Western Italian, French and Dinaric Alps over the last few years, with a



Figure 4 – *Carabinieri Antipoison dog Units*. © CUEA/E. Gallo

clear expansion further into the Central-Eastern Alps, the Austrian Alps and the foothills of Piedmont, and France. In the Italian alpine regions, the most recent estimates of the presence of the wolf, carried out in 2020–2021, documented 124 packs and couples, concentrated mainly in the western range, with mean wolf abundance estimated to be 946 individuals (822–1099; 95% credibility interval) (Marucco et al. 2022). In France, the number of Permanent Presence Areas is increasing throughout the country, with an estimated 145 such areas and 128 packs (summer 2021) (OFB 2022). In Slovenia (2020 / 2021 monitoring season), 12 packs were identified (2 of which are shared with Croatia), and an estimated 120 wolves (106–147; 95% confidence interval) (SFS 2022). To date, wolf monitoring in Austria has mostly been done through reported observations (e.g. camera traps, random encounters) and inspections of livestock that has been killed. However, in the last few years, a reduced form of active monitoring has been applied by the University of Veterinary Medicine, Vienna, in areas where packs have formed. In the monitoring period 2020 / 2021, three packs, all outside the Alpine area, were identified. A total minimum of 50 individuals were found, including wolves from packs, pups and single wolves (Rauer et al. 2022). All the above-mentioned reports are available on the Download section of the LWA EU website (<https://www.lifewolfalps.eu/en/download/>).

3. Anti-poaching

LWA EU continues on the successful path taken by the previous LIFE WolfAlps project, establishing new Antipoison Dog Units (APDUs) that will complement the existing ones, so as to cover the entire Alpine region. The use of poisoned bait is one of the most serious threats to the conservation of the wolf, but it also represents a risk for many other wild species as well as for pets, such as dogs and cats, which can become



Figure 5 – Dog–wolf hybrids in the Piedmont-Ligurian Apennines. © APAP Archives

victims. In Italy there are six new operational LWA EU APDUs, of which two are in Liguria, one in Piedmont, two in Lombardy and one in Veneto. They include members of the *Carabinieri Forestali*, Province Police officers, professional dog trainers, and personnel from parks and regional and provincial public institutions (Figure 4). In Austria, one dog unit is formed by the University of Veterinary Medicine, Vienna, a project partner.

LIFE WolfAlps EU is also supported by five co-financiers which participate in individual actions, using their own resources. A prominent role among the co-founders is played by *Fondazione Capellino*, a non-profit organization (<https://fondazionecapellino.org/en/fondazione-capellino>), which has the preservation of biodiversity as a core objective. Through Almo Nature, the Foundation supplies high-quality pet food for the breeders' livestock guarding dogs, and for the anti-poison dog units engaged in the fight against poaching.

4. Stakeholder involvement

A participatory approach involving and engaging key stakeholders (farmers, hunters and environmentalists) and other groups interested in the presence of the wolf (e.g. hikers, cultural or artisan associations, nature Parks, teachers, nature guides, tour operators, publishers etc.) helps to lower the conflict level. Through thematic platforms, local meetings, involvement in project actions and stewardship initiatives, the project intends to make stakeholders true actors in the process of building wolf–human coexistence in the Alps. Through the Stewardship Programme, the LWA EU project encourages active collaborations with those stakeholders who are willing to interact with the project in terms of ideas, knowledge build-

ing and pilot actions (<https://www.lifewolfalps.eu/en/stakeholders/>).

As stakeholders' perceptions are not formed solely by their interactions with large carnivores, but also by their interactions with other stakeholders (Hovardas 2018), their engagement is being promoted through opportunities for debates, and in particular through project stewards. As an example, several breeders have decided to commit to a stewardship agreement, as they believe that the wolf's presence may represent an opportunity to adjust farming approaches in favour of wildlife and the environment in general. These stewards, involve not only their clients but also other breeders, through personal meetings and collaborations, for example in the use of attack-prevention measures or guard dogs for livestock.

5. Hybridization control

Dog–wolf hybridization is considered a serious threat to wolf conservation by the scientific community. The LWA EU project addresses the loss of genetic identity due to the spread of hybridization, recently documented in the Northern Apennines, the Western Alps and Slovenia, (Figure 5). Dog–wolf hybridization is managed using different approaches across European countries, and also among the LWA EU partners: while Italy has defined a capture-sterilization-release approach for the hybrids, Slovenia has opted for a different solution. In order to prevent the further spread of dog genes into the wolf population, the country's Ministry of Environment and Spatial Planning issues permits, based on phenotypic and genetic evidence, for the culling of nine individuals: one female wolf and eight wolf–dog hybrids (alpha male and seven pups). The permit for



Figure 6 – Event organized for the wider public at MUSE. © MUSE



Figure 7 – Exchange experience with experts on large carnivore topics. © Slovenia Forest Service

the removal from the wild by shooting is valid until the end of 2022. For more information, see <https://www.lifewolfalps.eu/en/category/hybridization-control/>.

6. Communication

Communication plays a fundamental role in the management of a charismatic species such as the wolf. Since the start of the project, the Communication group has worked on creating quality information related to wolves, disseminating project activities, and communicating the correct behaviour to adopt in areas where wolves are present, with particular attention to areas of recent colonization. Communications are targeted, getting in touch and sharing information with stakeholders, local communities, the general public, journalists and influencers, tourism professionals and mountain visitors (Figures 6, 7). The greater visibility of wolves and the rising numbers of direct experiences with the animal due to the species' expansion into new areas, including lowland and fragmented landscapes and ones densely populated by humans, can increase social conflicts and negative attitudes toward wolves because of the fear of aggression. For these reasons, specific protocols and awareness campaigns on wolf ecology and best practices to maintain wolf populations in a favourable state of conservation



Figure 8 – Young Rangers in action. © Archive APAM_I. Borgna

can help further wolf–human coexistence. Specific guidelines on how to deal with bold wolves in particular were produced and discussed in April during the second international thematic conference at the Fortress of Bard, Aosta, Italy (AA. VV. 2022).

Moreover, networking with other LIFE and non-LIFE projects also fosters collaborations, and the exchange of knowledge, pilot experiences, know-how and good practices.

7. Education

Young people are the next generation to be responsible for making decisions on environmental conservation. Various educational activities are being launched by project partners and supporters, addressing different sectors ranging from school children to third-age university students, as well as park and museum visitors. Activities include indoor and outdoor classes, art camps and role-playing. In order to ensure the greatest possible objectivity, experts and representatives from the worlds of breeding, hunting and environmental protection are invited to discuss issues with young people at special conferences in schools. For instance the Young Ranger programme was launched in April 2022 by the 39 members of the parks and museums network with the aim of improving the knowledge and awareness of young tourists, actively engaging them in the protection of biodiversity today and for the future (<https://www.lifewolfalps.eu/en/young-ranger/>). Through the games, insights and beautiful illustrations included in the booklet on the many points of view of those affected by the return of the wolf and the critical issues for the wolf's existence alongside human activities, young people can expand their knowledge and respect of biodiversity. Additional materials, including further insights, were produced by the members of the Young Ranger Network (Figure 8).

8. Interactions among prey, predator and human activities

This action aims to identify the wolf's predation pressure on wild (but also on domestic) animals. It

takes into consideration the ecosystem in which they are integrated, including, therefore, human practices (such as hunting, farming and tourism). The knowledge of interactions between the wolves and their wild and domestic prey is a prerequisite for practical decision-making support tools, for species and land management at ecosystem level. Management approaches at this level are particularly effective if they use a participatory approach. Close collaboration with hunting associations in particular is ongoing in order to conduct monitoring and data analysis.

9. Ecotourism

In order to support and promote responsible tourism activities connected to the wolf's presence, specific guidelines were developed by a comprehensive set of authors from all over Europe. These guidelines address the delicate business of the provision of high quality, educational programmes for tourists which at the same time have as little negative impact as possible on wolves, the surrounding nature and local people. The guidelines are not exhaustive and should be adapted to the local circumstances in each country (Kavčič et al. 2022).

Conclusion – A challenge for wildlife conservation

The LWA EU project has two more years to run and several issues to address, such as the conflict with livestock production and wolf–dog hybridization, as discussed above. However, the most important challenge goes beyond the project and action deadlines: to improve wolf–human coexistence through a participatory approach that brings together all stakeholders for enduring and productive interactions regarding wildlife management based on scientific data. Indeed the problem for human beings with wild species such as the wolf is that its pursuit of survival collides with human pursuits; large, free-roaming predators such as the wolf can require humans to change their habits, their livelihood, and even their place in the food chain (Nijhuis 2019). The LWA EU project will work throughout its duration and beyond for concrete coexistence in a shared landscape, spreading the tools it has developed to support and involve all stakeholders in the analysis, planning and resource allocation that are essential to balance large carnivore conservation with human activities.

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