



A manifesto for large carnivore conservation and management in Europe (version 26.11.2023)

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Prelude

Since its creation in 1995 the Large Carnivore Initiative for Europe¹ (LCIE) has worked towards the achievement of a vision *“To maintain and restore, in coexistence with people, viable populations of large carnivores as an integral part of ecosystems and landscapes across Europe”*. In the 21st century the context of large carnivore conservation in Europe has developed considerably due to many expansions (and some few contractions) in carnivore distributions (especially by wolves and jackals) and massive changes in environmental, social, economic and political situations across the continent. The recovery of the species in many areas implies that, with the exception of some small populations of bears and lynx, in most areas we are often no longer in a situation of saving species from extinction. Rather, we are in the process of finding ways to live with the success of decades of successful conservation. Against this background we also see that controversies around managing this success are becoming increasingly polarized and linked to wider social and political movements.

¹ The Large Carnivore Initiative for Europe is currently a Specialist Group within the Species Survival Commission of the IUCN-International Union for Nature Conservation. See www.lcie.org for more details.

This evolving manifesto² builds on the series of policy support statements that have been made by the LCIE over the last 20 years, and the principles for Population Level Management³ that were developed in 2008, as well as policies developed by other IUCN specialist groups such as the IUCN Policy on Sustainable Use of Wild Living Resources⁴ and Guidelines on Human-Wildlife Conflict and Coexistence⁵, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)⁶, the Global Targets for 2030 of the Convention on Biological Diversity⁷ as well as the ongoing work within the Alpine Convention and the Carpathian convention⁸.

This is a manifesto of how the LCIE think large carnivore conservation and management could look in a European context. It is informed by our combined experience and knowledge coming from a diversity of professions and disciplines as well as motivated by our personal ethics of biodiversity conservation. It is intended to inspire, by outlining some long-term objectives and stretch goals which will often go beyond the minimum standards required by international legal instruments. It states some principles and recommendations of the measures needed to achieve these objectives but does not seek to be prescriptive about specific contexts. Embracing a coordinated diversity of approaches adapted to different contexts is at the heart of our philosophy. This manifesto is intended to explore in greater detail the potential relationship between people and large carnivores in the landscapes that they share. It is intended to be relevant for all European countries and six large European carnivore species: brown bear (*Ursus arctos*), wolf (*Canis lupus*), Eurasian lynx (*Lynx lynx*), Iberian lynx (*Lynx pardinus*), wolverine (*Gulo gulo*) and golden jackal (*Canis aureus*).

Premises

There are three central sets of ethical premises underlying our vision. Many of these are implicit in most conservation actions while others may be context dependent, but in the interest of transparency and reflection we feel it is important to make them explicit.

The first set of premises concerns broad convictions and ethical standpoints concerning nature that underpin virtually all wildlife conservation efforts:

- Large carnivores have intrinsic value and are a legitimate part of the European fauna.
- Europe is a better, richer, and more diverse place with large carnivores and the role they may play in functional ecosystems.
- Present and future generations should be able to experience large carnivores as an integral part of our European natural heritage.

The second set of premises concerns convictions concerning human societies and their relationship with nature:

- European societies can legitimately use natural resources in a sustainable manner.

² First version developed in 2013, then modified in 2023.

³ Linnell, J., Salvatori, V. & Boitani, L. (2008) *Guidelines for population level management plans for large carnivores in Europe*. A Large Carnivore Initiative for Europe report prepared for the European Commission (contract 070501/2005/424162/MAR/B2).

⁴ IUCN (2000) IUCN Policy statement on sustainable use of wild living resources. IUCN, Gland, Switzerland.

⁵ IUCN. (2023). IUCN SSC guidelines on human-wildlife conflict and coexistence. - IUCN, Gland, Switzerland, and IUCN SSC HWCTF (2022) Perspectives on human-wildlife coexistence. Briefing paper by the IUCN SSC Human-Wildlife Conflict Task Force.

⁶ IPBES (2022) Summary for Policymakers of the Thematic Assessment Report on the Sustainable Use of Wild Species of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. IPBES Secretariat, Bonn, Germany.

⁷ Convention on Biological Diversity <https://www.cbd.int/>

⁸ <https://www.alpconv.org/en/> and <http://www.carpathianconvention.org/>

- Human safety and well-being are important issues to be considered.
- Human activity is important for maintaining the natural and cultural values of many European landscapes.
- Decision-making concerning the conservation and use of biodiversity and natural resources should be conducted in an objective, transparent and democratic manner, should reflect respect for the interests of local people who live in close proximity to wildlife, and be based on the best available knowledge (scientific and experience).

This duality of premises – containing both natural and social elements – is clearly embedded in all the major international legal instruments that govern nature conservation in Europe today, e.g. Bern Convention, European Landscape Convention, Habitats Directive, and the Convention on Biological Diversity (including its associated Malawi and Addis Ababa principles) as well as the emerging frameworks of the IPBES and EU level policies such as the EU Biodiversity Strategy for 2030.

The third set of premises concerns the definition of the ecological setting for large carnivore conservation in Europe, and is based on the accumulated results of decades of research:

- Large carnivores naturally occur at relatively low densities, have large home ranges, and are highly mobile.
- Although they are often treated as a functional group, wolves, brown bears, Eurasian lynx, Iberian lynx, wolverines, and golden jackals have many species-specific differences with respect to their ecology, behaviour, conservation needs, and interactions with humans that need to be considered.
- Wild areas without human land-use or activity on a scale meaningful for large carnivore populations are virtually non-existent in Europe.
- Much of the multi-use landscape of Europe with its mixture of agricultural land, forests, meadows and mountains represents a suitable habitat for large carnivores from an ecological perspective. Large carnivores have shown a clear ability to live in human-dominated landscapes.
- Therefore, large carnivore conservation in Europe can only be successful if large carnivores are allowed to coexist in shared multi-use landscapes where a diversity of human activities and land-uses are conducted.
- The combined result of these factors is that the benchmark for conservation success for large carnivores in most of Europe will inevitably be constituted by some form of “novel ecosystem” rather than any primeval state of “naturalness” without any human intervention of activities. As a result their ecological functions are likely to be heavily modified by human influence on all trophic levels, and highly context dependent.
- However, the wilderness and near-natural areas that do remain, typically within protected areas, are clearly important for biodiversity and the presence of large carnivores is important to maintain ecosystem functionality within them.
- Although protected areas alone cannot ensure the conservation of large carnivores in Europe in general, it is important to recognize their continued importance, especially for some of the small populations of carnivores that occur in parts of southern and central Europe.

The challenge

Based on these three sets of premises, the challenge is to negotiate and achieve the coexistence relationship between large carnivores, humans (especially local people who live with and bear the immediate costs, and benefits, of carnivores) and their activities in a manner that both ensures that large carnivore populations are an integral and functional part of the European landscape and respects and maintains the well-being and livelihoods of a diversity of human communities in shared landscapes. Because many aspects of this relationship are associated with conflicts, there is a need to achieve a certain degree of compromise and implement appropriate adaptation and mitigation measures. In order for large carnivore – human coexistence to be achievable and sustainable there is a need to recognize that solutions will be:

- Dynamic over time – responding to changing environmental and social conditions as well as responding to changes within the large carnivore populations.
- Variable in space – accounting for variation in environmental, social, economic and cultural conditions, the tolerance of local communities and the capacity of different administrations and institutions.
- Species dependent – taking account of differences in ecology, in real or perceived conflict levels, conservation status, and social and cultural conditions.

The nature of coexistence

Although coexistence is our stated objective for the relationship between large carnivores and humans in Europe, many questions remain as to how coexistence actually looks. There likely will never be a day when all stakeholders and individuals agree on how large carnivores should be managed and when everybody welcomes their conservation. In this respect, large carnivore management is no different from any other policy area. In brief, coexistence requires reaching multiple objectives at the same time, including (1) fostering viable carnivore populations, (2) minimizing carnivore impacts on human interests and allowing for rural communities to develop, and (3) minimizing social conflicts between different groups in society. More specifically, we view a successful coexistence as containing the following elements:

- Coexistence should be viewed as a dynamic and co-adaptive process where both people and large carnivores are viewed as integral and interacting parts of the landscape. Approaches to coexistence will be variable and context dependent in both space and time.
- Although coexistence does not require all stakeholders to agree on all aspects of large carnivore conservation, it does require a degree of tolerance of the presence of large carnivores and the legitimate interests of a diversity of stakeholders with divergent opinions.
- The opinions and perspectives of local communities and groups that are directly influenced by, and have an influence on, large carnivore conservation require particular weight and attention.
- However, coexistence with large carnivores also requires coordination at large spatial (continental) scales because of their specific ecology (low density, large home ranges, high mobility).
- The negotiation of different points of view should be conducted through channels which are legal and based on participatory meetings or processes.

- Coexistence inevitably involves a tolerance for compromises, the nature of which will vary with time and space.
- Coexistence does not imply the absence of conflict, but it does require that these conflicts are properly managed and minimized to the lowest possible level.

A future status for large carnivores

Because of their low densities and high mobility, securing short to medium term viability of large carnivore populations will require them to occupy large parts of the European continent. When long term viability, especially including genetic aspects, is considered there is a need to further ensure a high degree of connectivity between the existing populations. While bearing in mind throughout the need to build and maintain social support for large carnivore conservation, the LCIE vision therefore aims for:

- In the short-term current large carnivore populations should be recovered to the extent that they are considered to be demographically viable.
- The long-term goal for European large carnivore conservation should be that all the existing populations of large carnivores are allowed to recover through natural dispersal to the extent that they are functionally connected to each other so that genetic diversity can be maintained or restored. Only in cases where this degree of connectivity is impossible to restore due to irreversible habitat modification should continuous assisted connection (through translocations) be used to restore and maintain viability.
- The default position should be that large carnivores are allowed to expand and colonize new areas within their potential ranges.
- Large carnivores should be able to live as functional, interactive and dynamic components of European ecosystems to the greatest extent possible. However, restoring ecological functionality has to consider the perceptions, livelihoods and activities of local communities. As a result, the degree of functionality that can be restored will be very context dependent.

Understanding conflict

Conflicts between humans and large carnivores have been common throughout history. During recent years, our understanding of conflicts has developed to the extent that we can now recognize that these conflicts can be very diverse and variable between regions and species. It is useful to separate between the direct and indirect impacts that large carnivores can have on economic and material interests and the social conflicts that involve disagreements between different groups of people about the way large carnivores are managed. In more details these conflicts and impacts include:

- A range of direct and indirect economic impacts that result from depredation on domestic animals, damage to beehives, trees, crops and infrastructure .
- Conflicts with, and impacts on, hunters through real and perceived competition for game and the killing of hunting dogs.
- Taking the needs of large carnivores into account may impose significant opportunity costs and limitations on some activities such as certain land uses and development that cause

disturbance, habitat fragmentation or increase conflict potential.

- The fear for personal safety is present among some human communities and should be recognized as a legitimate concern. Risks are low, but attacks by bears and wolves do occur.
- There are a wide range of social conflicts where large carnivores are regarded of being symbolic of wider political issues, including modernization and urban-rural tensions. In such cases, the large carnivores are often instrumentalized as surrogates for wider conflict issues.
- Worldviews with respect to the appropriate relationship between humans and wildlife differ dramatically and are constantly changing. For example, a proportion of society may be in fundamental opposition to the values that underlie large carnivore conservation. Similarly, a proportion of society may be in fundamental opposition to the values that underlie sustainable game management and hunting activities.
- Conflicts over knowledge, for example differences between scientific and lay knowledge, may be a major part of some large carnivore related conflicts.
- While the mass media often has a crucial role in communication there is an unfortunate tendency for media to amplify social conflicts through biased and / or polarized reporting and sensationalisation of issues.

Responding to conflict

Recognizing the potential severity and diversity of conflicts is a first step towards mounting a response. Many conflicts, especially the material and economic impacts, can be mitigated, at least in part, through appropriate interventions.

- The primary responsibility should be to adapt human activities in order to take into account and reconcile the needs of both humans and large carnivores. Governments, NGOs and scientists should facilitate this adaptation through providing knowledge, technical assistance, and appropriate economic support to ensure that costs and benefits are more evenly distributed between the affected and unaffected publics. However, it is also important to be aware of potential conflicts and negative side-effects that can arise from the adoption of mitigation measures.
- It is also important to explore and visualize the potential benefits that large carnivores can bring to rural economies and to the structure and function of ecosystems as well as the non-economic positive values many stakeholders attach to their presence.
- Payment of ex-post facto compensation without conditions of effective mitigation does not usually contribute much to decrease conflicts and may actually enhance them. Paying for prevention measures, providing technical and practical assistance to operationalize them, and providing other positive incentives for large carnivore presence should be preferred in situations where economic instruments are needed. However, compensation does have a role to play, both in the face of catastrophic events and in areas where large carnivores are colonizing.
- Experienced rapid response / emergency teams, preferably with a local composition, are necessary for reacting to certain types of conflict and for the rescue of injured animals.
- Social conflicts are best dealt with through improved institutional arrangements that promote mutual respect and understanding, broad participation, and dialogue among stakeholders.

When confronting social conflicts, it is also useful to identify and address the deeper underlying causes that may not be directly related to large carnivores themselves.

- The active engagement of a diversity of stakeholders in generating, interpreting and communicating knowledge (citizen science) is desirable as a measure to reduce conflicts over knowledge.
- Large carnivore conservation, management and prevention measures should be based on reliable and, where possible, quantitative information. This requirement underlines the importance of sound, reliable and standardized monitoring systems and the development of trusted and accessible databases.
- There is a need to design policies to sustainably support, organize and finance the roll out of damage prevention methods at very large scales.
- If local communities feel that the amount of conflict is intolerable despite the comprehensive adoption of targeted non-lethal mitigation strategies, they may call for reductions in the density of large carnivore populations. Whether such an approach will succeed is likely to be highly context-dependent and needs to be thoroughly evaluated, as levels of conflict do not necessarily correlate with carnivore population density.

The benefits of large carnivores

Public discourse, management strategies and research agendas on large carnivores are often dominated by conflicts and the costs of their conservation. Too little attention is paid to the potential social or ecological benefits they can bring and the underlying positive values (both tangible and intangible) that many people attach to them. It is important to underline that many of these issues are highly contextual, and therefore not universal or adequately explored in Europe. Examples of these potential positive values include;

- Large carnivores contribute to ecological interactions within animal and plant communities and ecosystems through predation, competition, providing carrion, and modifying prey behaviour. The strengths of these effects vary widely across the European landscape and between species, but all levels of impact are important from the perspective of biodiversity conservation and have the potential to contribute, for example, to forest regeneration (and hence climate change mitigation) through reduction in browsing pressure as well as to reducing crop damage by deer, wild boar and beavers and vehicle collisions with ungulates.
- Brown bears, as omnivores, spread large quantities of fertile seeds from a large variety of food plants.
- There is evidence that large carnivores can limit the spread of some diseases and pathogens in prey populations by selectively removing infected individuals. They may also limit numbers of mesocarnivores through competitive killing and interference competition.
- Large carnivores can remove carrion by scavenging.
- Large carnivores are highly suitable umbrella species for large-scale landscape level connectivity. Their spatial needs can motivate ecological corridor planning and infrastructure crossing structure construction that can benefit many other species.

- Large carnivores increasingly contribute to nature-based tourism in many parts of Europe – either directly for viewing, or indirectly as part of a destination’s brand / image and by providing advertising value. Such ecotourism based on LC presence provides an income to local communities in many places of Europe.
- In landscapes where they are rarely seen directly, their presence, and observations of tracks and signs, can nevertheless represents powerful experiential value for many people.
- The complexity of large carnivore conservation has motivated huge amounts of social and natural science research, massively contributing to the development of knowledge about human-wildlife interactions and the development of educational and research capacity.
- Conflicts surrounding large carnivore conservation have motivated the development of new forums for engagement (including both dialogue and data collection) between researchers, management authorities, environmentalists and rural stakeholders that can have relevance for many other conservation settings.
- Large carnivores can represent powerful symbols for conservation, offering hope for the possibility of wildlife recovery in the modern European landscape.
- Large carnivores are species with considerable aesthetic, symbolic, intrinsic or spiritual values to many people, providing pleasure, artistic inspiration and contributing to a sense of well-being.
- Large carnivore presence, their interactions with humans, and human adaptation to their presence such as livestock protection measures represent important heritage values at the interface between natural and cultural heritage. Economic support to adapt traditional practices to the presence of large carnivores may contribute to their economic viability.
- Large carnivores represent highly valued game species for hunters in some cultural settings and can provide a source of income for management of wildlife.
- The presence of large carnivores provides a modern-day connection with rural history, traditions and folklore.

Management of habitat and prey

Large carnivores have adapted and persisted for millennia in the presence of many human activities. However, they do have some basic requirements for food / prey and habitat, and there are some limits to what they can tolerate. The different species may well have different tolerance levels. Furthermore, while they have shown an ability to persist in the presence of many traditional human land-uses, they face a far greater threat from many of the new uses of the landscapes, especially those associated with infrastructure development (energy production, transport, recreation, border security).

- Outdoor recreation, hunting, harvesting wild fruits and plants and forestry should be conducted in a manner which is sustainable, provides incentives for maintenance of wildlife habitats, and takes into account the legitimate use of these shared resources by large carnivores, especially during sensitive periods of their life cycle. In areas with large carnivore populations, the prey base and availability of wild foods should therefore be maintained at levels that permit large carnivore persistence. For example, this requires that hunting plans for wild ungulates take the needs of large carnivores into account.

- Human modification of large carnivore habitats should ensure that enough areas of suitable and connected habitat exist to achieve conservation goals. It is particularly important to ensure that infrastructure development adopts appropriate mitigation measures to minimize mortality, reduce disturbance, provide compensation measures and ensure permeability on a landscape scale.
- Landscape-level planning needs to be conducted at both large (population) and local (home-range) scales for large carnivores, and environmental impact assessments for new development should consider both individual and cumulative impacts from the full range of developments and land- uses.
- Artificial feeding of large carnivores should generally be avoided or minimized. However, we recognise that it is a common practice in the management of some bear and Iberian lynx populations. In such cases it should be carefully practiced to maximise benefits, minimize negative side effects and be carefully monitored, evaluated and regulated⁹.

Management of large carnivore populations

When recognizing the highly modified nature of the European landscape and the high human densities with which large carnivores must coexist it is important to recognize that large carnivores cannot be conserved simply through a hands-off process. This may require some degree of population regulation to the extent that legal frameworks permit. There are also populations that are unlikely to survive in the short term without active conservation measures. Therefore, large carnivore conservation is likely to require an ongoing degree of active intervention using a range of locally and context specific tools.

- The non-consumptive use of large carnivores, for example in ecotourism, should be promoted where practical and appropriate. However, it must be conducted according to clear guidelines¹⁰ to minimize potentially negative impacts such as disturbance and unintentional effects of using baits / artificial feeding.
- The remaining genetic diversity of European large carnivores should be conserved as much as possible to allow the potential for evolutionary adaptation. However, there should be no active effort to prevent natural expansion and the resulting mixture of currently distinct genetic units. Maintaining genetic representation, rather than distinctiveness, should be the goal. On the other hand, where inbreeding is identified as a conservation concern, measures may be needed to increase genetic diversity.
- Where possible the expansion of range and restoration of connectivity should be facilitated by natural recovery. However, given the differences in dispersal ability between the six species and the pattern of past population extinction it has to be understood that both lynx species and brown bears have a relatively limited potential for natural recolonization in fragmented landscapes and may require assisted dispersal in some areas.
- Translocation, reintroduction and population reinforcement may be important in some specific

⁹ Recommendation to the Bern Convention (T-PVS (2018)7) “On the use of artificial feeding as a management tool of large carnivore populations and their prey, with a particular emphasis on the brown bear”.

¹⁰ Kavcic et al. (2022) Non-consumptive use of wolves in tourism: Guidelines for responsible practices. University of Ljubljana, Slovenia, and Karamanlidis et al. (2016) Non-consumptive use of brown bears in tourism: Guidelines for responsible practices. University of Ljubljana, Slovenia.

situations but should only be conducted under carefully planned operations including stakeholder consultation, international coordination, preferably using wild-caught individuals and following IUCN guidelines¹¹.

- The release of individuals either born in captivity or held in captivity for prolonged periods should generally be avoided; especially for bears because of the higher risks of habituation and conflicts with humans, and is only acceptable for golden jackals, Eurasian and Iberian lynx, wolverines, and to a lesser extent for wolves, in very specific and carefully planned situations.
- Hybridization between wolves and dogs represents a threat to wolf conservation for a variety of reasons related to their ecological impacts, the public perception of the risks from hybrids, and other issues related to practical management. Responsible authorities should (1) take adequate measures to monitor, prevent and mitigate hybridization between wild wolves and dogs, including, as appropriate, effective measures to minimise numbers of feral, stray and uncontrolled free-ranging dogs, (2) promote the detection of free-ranging wolf-dog hybrids, and (3) ensure government-controlled removal of detected wolf-dog hybrids from wild wolf populations. Similar issues may apply to dog-jackal relationships, but to a lesser extent.
- Reaction to conflict through lethal control actions directed at specific problem individuals can be a part of integrated conflict management but should be used with caution and after consideration of other non-lethal approaches (such as damage prevention methods).
- It is also important to recognize that hunting of large carnivores may be highly controversial among some segments of the public. However, legalised, well-regulated hunting of large carnivores at sustainable levels might be a useful tool in responding to conflict, potentially through slowing their increase to socially acceptable levels, engaging local populations in management, increasing the perceived local value of the carnivores, and decreasing illegal killing. However, whether hunting has these benefits is very context-specific and depends on many social and ecological factors. There is also a clear need for an improved documentation of the impact of hunting on diverse conflicts.
- The management of large carnivore populations should always be conducted within an ecosystem context where unintended negative interactions between different large carnivores, and towards prey, are also considered and minimised.

Animal welfare considerations in large carnivore conservation

The primary focus of this manifesto is to ensure the long-term persistence of populations of large carnivores. However, we recognize the importance of welfare considerations concerning individual carnivores. Therefore, we;

- Accept the value of rescue, rehabilitation and release of individual large carnivores provided they have not been kept in captivity in a way that they become habituated to humans and may therefore pose an increased risk of causing conflict or endangering human safety.
- Believe that management actions such as euthanasia, lethal control, removal, hunting and research directed at individual free-living large carnivores should be conducted in a manner

¹¹ IUCN/SSC (2013) Guidelines for reintroductions and other conservation translocations. Version 1.0. IUCN, Gland, Switzerland.

which is as humane as possible.

- Recognise that there is an increasing public demand for non-lethal interventions. However, we recognize that measures such as targeted non-lethal removal of individuals from the wild or birth control are very complicated and sometimes impossible, that animal capture and life-long holding in captivity are both very expensive and fraught with a whole set of animal welfare considerations, and impossible to implement at scale.

Institutional arrangements

Large carnivore conservation in shared landscapes is a challenging activity and requires that responsible institutions have a high capacity and well-established procedures. When developing such institutions, it is important to consider the following:

- Because of the spatial scale at which large carnivore conservation occurs there is a definite need for intra-national and international cooperation across administrative borders. There should be an efficient coordination from larger scale authorities whenever decentralization and delegation of management authority to smaller administrative units occurs.
- Decision-making should be democratic, involve appropriate devolution, be guided by up-to-date research concerning both natural and social sciences, and the recognition that all countries have to cooperate with each other to achieve large carnivore conservation.
- Policy options are limited by the biology and ecology of large carnivores, especially with respect to their predatory nature, population growth rates and large spatial requirements.
- Institutional arrangements should be designed in a way that they are efficient and sustainable, economically, socially and ecologically, with clear, transparent, and predictable procedures.
- Large carnivore management plans and goals should be designed within an adaptive management framework, regularly updated, adapted to local situations, include the best available science and be responsive to local level influences and needs.
- Because large carnivore conservation is a long-term activity, clear efforts should be made to preserve institutional memory. Relevant staff should have access to constant education and capacity-building training.
- The development of Population Level Management Plans should involve all administrative units and affected stakeholders that share biologically meaningful populations of large carnivores.
- Because of the diversity of human interests with which large carnivores interact there is a need for a high degree of cross-sectorial cooperation and policy coordination. The most important sectors are environment, law enforcement, agriculture, forestry, wildlife management and hunting, transport, landscape planning, rural development, border security / defence, energy infrastructure, public safety and tourism.
- There is a need to secure long-term and predictable public funding for population monitoring, conflict monitoring, conflict mitigation, communication, stakeholder engagement, and research activities to support adaptive management.
- There should be formal channels for bridging the science-policy interface, that facilitate the integration of scientific results into management structures, and that allow managers to

commission priority research activities from researchers.

- Management institutions need to have well established routines for engagement with the full range of relevant stakeholders to facilitate communication and provide a real scope for consultation and influence.
- Institutions should integrate civil society and stakeholders as active partners in large carnivore management.
- Illegal killing of large carnivores must be treated as a serious crime. Known cases must be followed-up through the legal system.

Knowledge needs and uses

There is a widespread acceptance that policy should be supported by the best available knowledge. However, there is also a widespread awareness that knowledge is a diverse concept and that multiple forms of knowledge exist, both coming from multiple disciplines within science and from other knowledge systems beyond formal science. While all of these have a role to play in informing policy and management, the challenge lies in identifying the strengths, weaknesses and limitations of each knowledge form.

- Large carnivore management policy needs to be informed by contributions from multiple research disciplines including the natural and social sciences, economics and the humanities.
- There is a continual need is for science-based, robust, but sustainable forms of census and monitoring of the status of large carnivore populations. The frequency of survey and required precision will depend on context, with small populations and those subject to high harvest rates needing more frequent and more precise data than other populations. The methodology needs to become more standardized, reliable, consistent and transparent, and should permit population-level assessments.
- All conservation and management interventions (including lethal management, translocations and damage prevention) should be as knowledge-based as possible and constantly assessed. The rationale and proposed mechanisms behind all interventions should be clearly articulated. Where knowledge is lacking, the interventions should be designed and monitored in a way that allows knowledge to accumulate to better inform future decisions.
- Multiple forms of knowledge should be utilized where possible, with a strong need to integrate a wide public in data gathering exercises. Existing and established monitoring systems which use civil society groups, such as foresters, hunters and environmentalists, should be encouraged whenever they provide reliable data. Citizen science frameworks can be useful at uniting lay and experience-based knowledge forms with formal scientific knowledge. However, it is crucial that data quality is high, that data should be verifiable and that standardized routines exist to integrate diverse types of data.
- Gathering reliable knowledge is a very time consuming and expensive process, and there is currently an enormous regional heterogeneity in the availability of knowledge and in the capacity to obtain more. As a result, it is an unavoidable issue that in many areas decisions will need to be made without all the information that is needed. In such cases it will be necessary to transfer data from other populations or resort to “rules of thumb” and previous experience. Caution should therefore be applied to management decisions proportional to the level of

knowledge available¹².

Final words

The manifesto describes our vision for the place of large carnivores within the European landscape. It relies on the premise that sustainable conservation in Europe needs to embrace the whole landscape including, but extending far beyond, protected areas to a continental scale where human land- use and wildlife conservation coexist in shared landscapes. It describes a vision of an active and dynamic relationship between humans and large carnivores, based on coadaptation. It is a vision based on knowledge, patience, tolerance, compromise and flexibility. It is a vision that hopes to see interconnected populations spread over as large parts of the continent as possible and managed in such a way that they are viewed as normal and valued parts of the fauna of the wider countryside.

¹² <https://eur-lex.europa.eu/EN/legal-content/summary/the-precautionary-principle.html>