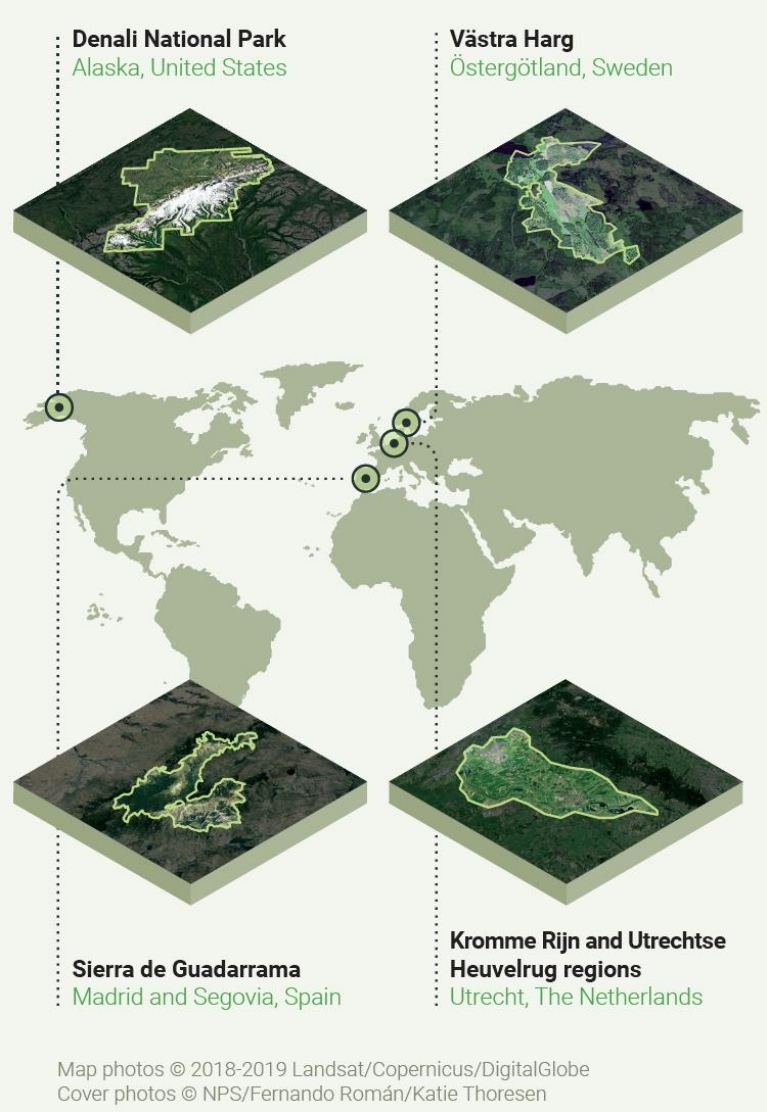
ENVISION

Visions for each protected area

Deliverable 2.1



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ENVISION is a 3-year research project that develops an inclusive approach to the management of protected areas with the aim of improving biodiversity and human well-being. We engage diverse groups of stakeholders of a protected area, such as recreational users, local residents, local businesses, land owners, agriculture, researchers or local governments and protected area managers.

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Citation: Filyushkina A. et al. (2020) Visions for each protected area. ENVISION Deliverable D2.1., 18 pages. DOI: 10.5281/zenodo.3674738

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ENVISION was funded through the 2017-2018 Belmont Forum and BiodivERsA joint call for research proposals, under the BiodivScen ERA-Net COFUND programme, and with the support of the following national funders.

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Executive summary

Protected areas are established and managed primarily for nature conservation, however they are also under constant pressure from multiple drivers and other interests. In the light of continuous decline of biodiversity, expansion of protected area networks and increasing their effectiveness could not be more paramount. Successful management of protected areas has been linked to the recognition of diverse stakeholders' perspectives and their engagement in decision-making. One of the commonly applied and effective approaches to stakeholder engagement is participatory scenario planning. ***The ENVISION project develops, tests and validates a novel trans-disciplinary scenario approach for engaging multiple stakeholders and local communities in the protected area management and biodiversity decision-making at multiple scales (refer to our website for a more detailed overview of the approach).***

This deliverable presents findings from the first step within the inclusive conservation approach – identification of main visions for the study areas. The focus is primarily on eliciting normative scenarios or visions, depicting desirable futures for the landscape. However, we also present identified explorative scenarios, describing plausible futures based on potential trajectories of drivers.

We elicited visions for four case study areas: three in Europe (Netherlands, Spain and Sweden) and one in North America, (Alaska, USA). The areas represent different settings, especially in regard to pressures of the human population on the natural resources. To do so, our teams have used a mixed methods approach employing different combinations of techniques at each area, depending on the local context and organization level of the stakeholders. Examples of used approaches and techniques include the STREAMLINE approach, fuzzy cognitive mapping, policy document analysis.

Most of the identified visions contain features of at least two out of four overarching vision perspectives (nature for itself, nature despite people, nature for people and nature and people), with some of them having the "leading" role in shaping the vision. Some visions share much of overlap between one another forming clusters, for examples "landscape of convenience" in Netherlands and "productivity-oriented landscape" in Netherlands and Sweden. A few themes emerged in visions across all four areas such as transparency and participation of stakeholders in decision making, the importance of preservation of biodiversity and recreational use. The Swedish, Spanish and Dutch study areas share one vision archetype, namely the holistic/integrated approach to the management of the area. Access to the land, sense of community and subsistence use issues are most important in the Denali National Park, U.S.

These visions could be useful in the search for new approaches towards reconciling human activities and needs and the protection of nature – 2050 vision of "living in harmony with nature" presented in the Zero draft of post-2020 global biodiversity framework of the CBD. In ENVISION project identified visions serve as a basis for future work and will be further developed in collaboration with stakeholders.

1. Introduction

Establishment and maintenance of protected areas is a common strategy for conserving biodiversity worldwide. Primarily managed for biodiversity, they are also under constant pressure from a variety of drivers (both from within the areas and surrounding landscapes) as well as the need to meet economic and other interests. These interests could include recreation, subsistence use, mitigation of climate change through carbon sequestration and others and are often in conflict with each other and/or biodiversity conservation. With the continuing decline of biodiversity and urgency of the situation highlighted by recent environmental assessments[1] protected areas are even more under pressure to "deliver". The need to both expand their networks as well as make them more ecologically effective, representative and well-connected have been stressed[1,2].

Balancing multiple distinct interests and addressing drivers represents one of the major challenges for protected areas management[3]. Additionally, local residents, stakeholders, scientists and practitioners have different perspectives on what conservation and protected areas entail. Successful management of protected areas has been linked to the recognition of these diverse perspectives and their engagement in decision-making[4,5]. One of the common approaches that has been particularly useful for analyzing drivers and stakeholder interests for protected area management is (participatory) scenario planning[6]. Scenario analyses have been used to better understand complex plausible futures and the impacts of global change on variety of issues in multiple environmental assessments such as the Intergovernmental Panel for Climate Change (IPCC), Millennium Ecosystem Assessment (MA), and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES).

ENVISION project develops, tests and validates a novel trans-disciplinary scenario approach for engaging multiple stakeholders and local communities in the protected area management and biodiversity decision-making at multiple scales. This inclusive approach to conservation includes employing a variety of tools and processes to identify, compare and balance the consequences of different perspectives and visions on how nature should be conserved[7].

This deliverable presents findings from the first step within the inclusive conservation approach – identification of main visions for the study areas. The focus is primarily on eliciting normative scenarios or visions, depicting desirable futures for the landscape[8]. However, we also present several exploratory scenarios resulting from elicitation process and describing plausible futures based on potential trajectories of drivers[9]. Recent examples of studies eliciting visions include: visions for future land use in Europe[8,10], visions for how Europeans want to live in 2040[11], and visions for the future of Scottish woodlands[12]. The importance of visions in science-policy processes and more informed decision-making is widely recognized[13,14]. In addition to identifying desirable futures, they provide an opportunity to explore conflicts as well as synergies occurring due to different viewpoints on contentious issues[14]. Including stakeholders and residents from different backgrounds could allow for more targeted policy measures, based on a better understanding of differences between social, demographic and geographic groups.

Achieving a better understanding of different visions is an important step towards identifying common ground and even collaboration between stakeholders. The process can help participants to learn about the issues being addressed and how they can work together to deal with them, building adaptive capacity among stakeholders to implement change[15].

Visions can be elicited through numerous approaches. We have identified visions from stakeholders and/or local residents for four study areas: three in Europe (in Netherlands, Spain and Sweden) and one in North America (Alaska, USA). These areas differ in circumstances and context such as important drivers and interests, size of the area, surrounding landscape etc. We adopted approaches that differed in terms of whose values have been assessed, in what setting and with the help of which techniques (see Table 1). Often vision elicitation was conducted by combining findings from several data collection processes.

Table 1: Overview of vision elicitation approaches applied in ENVISION study areas

	Study area			
	Västra Harg nature reserve and the wider Östergötland region, Sweden	Sierra de Guadarrama, Spain	Kromme Rijn and Utrechtse Heuvelrug regions, The Netherlands	Denali National Park, United States
(a) Whose values				
Stakeholder groups	X	X	X	X
Residents	X	X	X	X
Societal/shared	X			
(b) Setting				
Individual interviews (remotely or face-to-face)	X	X	X	X
Group discussions/workshops				X
Online survey	X			
(c) Framework				
STREAMLINE canvas		X	X	
Fuzzy cognitive mapping				X
Participatory mapping	X	X	X	X
(d) Other				
Policy (document) analysis & review	X		X	X

Next sections of this deliverable are organized by study area. For each of them we give a short overview of adopted approach as well as identified visions. Within this lay-out there are differences in information provided for each area, resulting from differences in taken approaches.

2. Visions identified for each protected area

2.1. Västra Harg nature reserve and the wider Östergötland region, Sweden

The Västra Harg nature reserve in Mjölby kommun, Östergötland region, Sweden, presents unique oak woodlands as well as a small bird lake is located in the southern part of the area. The reserve also contains natural pastures with old oaks and valuable flora. However, as a result of competing land uses, these oak woodlands are degrading.

2.1.1. Overview of approach

During August 2019, the team conducted 30 semi-structured interviews with stakeholders. The interviewees represented the following groups: residents, land-owners, public administration, conservation, recreation, agriculture and forestry. The interviews contained seven parts: 1) Previous experience in landscape management and relationship to the Östergötland region; 2) Understanding of the region in the here and now; 3) Broad values held by the interviewee; 4) Interviewee's preferences for landscape management in the region; 5) Knowledge sources drawn upon by the interviewee; 6) The relationships between values, knowledge and visions for landscape management; and 7) Views on the knowledge alliance process.

Also, in summer of 2019, we distributed an online survey, that was completed by approximately 320 residents of one of the municipalities in the region (Mjölby kommun). The survey had a participatory mapping component and gathered visions about community development as well as socio-cultural values towards the environment, and perceived environmental threats such as the presence of wild boar.

Finally, we complemented data obtained from the two surveys with policy document screening and analysis for visions for the area.

2.1.2. Visions and themes

(A) Multifunctional landscapes: This vision is based on a holistic approach to landscape management while balancing productivity and biodiversity goals. Institutional collaborations are established and maintained to tackle landscape management scale and domain mismatches (e.g. municipality and regional, farming and forestry). Decision-making is conducted in a participatory and transparent manner, and is made possible thanks to strong community ties. Residents have shown interest in being involved in the management of local natural landscapes, particularly the management of meadows and the creation and management of wetlands, and multiple planning processes have been devoted to hearing all voices, including conflicting ones. The concern for consensus and arriving in a common vision comes to some extent secondarily after the concern for extending participation. Forestry, farming, wildlife and biodiversity co-exit. Land uses are managed in sustainable way and are integrated to support e.g., grazing meadows. Protected areas such as the native oak forests are made accessible through trails and signs, but not too accessible. Residents have also shown a desire for increased management of walking and biking trails in the

green spaces near Mjölby, and Västra Harg in particular. Recreation and leisure are important ecosystem services in this vision. There is a community desire for control of wild boar populations and other pest species in the south and central Mjölby kommun. This vision also includes the idea of a 'livable countryside' with a high quality of rural life supported by the State (e.g. schools, shops, transport, internet) creating conditions for people to continue living in the countryside.

(B) Productivity-oriented landscape: A vision influenced by economic productivity and efficiency. Participation and inclusion are important; however, powerful individuals are agents of this vision. Transparency of decision-making is ensured. Food production is encouraged. Attractive, open landscapes are maintained through agriculture. The local communities are aware of non-provisioning benefits of farming such as cultural values and co-creation of ecosystem services. Productive and sustainable forestry is practised by balancing timber harvesting and conservation of forests. Consequences of public access rights and obligations are taken into account. People view wild boars as having driven landscape change in the kommun, in addition to increased deer and bark beetle populations. Many respondents expressed concerns regarding the potential for property damage by wild boars, and they would like to see the development of a management plan in order to reduce the damage done to agricultural and forestry landscapes (primarily), as well as other biodiverse landscapes. This vision also includes the idea of a 'livable countryside' with a high quality of rural life supported by the State (e.g. schools, shops, transport).

Policy targets and 'official' visions' identified through document analysis:

(C) Biodiversity conservation*:* Ecological 'value' is understood as 'värdetrakt', a cluster of high-quality habitats, corridors, and supporting habitats. Spatial context is seen as important for setting priorities; the dimensionality of individual objects is secondary. Biodiversity conservation in the region focuses on four habitat types: 1) Dry to wet grasslands (part of the cultural landscape); 2) Broadleaved deciduous woodlands (primarily oak woodlands); 3) Rivers and streams; 4) Green infrastructure in spatial planning. Other interests are present in the landscape; however, conservation of biodiversity often takes priority whenever possible.

(D). Historical landscapes: Landscapes that look like 150 years ago. Revitalization or creative reinterpretation of traditions.

2.2. Sierra de Guadarrama, Spain

The Sierra de Guadarrama National Park in Spain covers 34,000 ha across the majestic Guadarrama mountain range. The park features unique granite rock formations, and rare and diverse plant and animal species. Given the close proximity of the park to major cities such as Madrid, the park has high numbers of visitors and is heavily used for recreation and relaxation. At the same time, there are many people who are interested in preserving its natural features.

2.2.1. Overview of approach

Over the summer of 2019, the team conducted 35 interviews with stakeholders concerning their place-based values and visions for protected area management, as well as their perceptions of landscape change and different drivers of those changes. Interviews were guided by STREAMLINE canvasses[1] and consisted of the following blocks of questions: 1) which ecosystem services interviewees would like to be maintained for the park; 2) what management actions should be used to realize this; 3) what specific uses should be permitted or restricted in both the park itself and in the peripheral zone outside of park boundaries.

In the fall of 2019, we conducted a face-to-face survey with 250 local residents to disentangle their ecological knowledge, perceptions and attitudes towards the landscapes as well as their visions for the landscape of Sierra de Guadarrama mountain range and protected areas.

2.2.2. Visions and themes

Stakeholders: The top five ecosystem services to manage for in the park identified by stakeholders were: carbon sequestration and storage mitigation, clean air and water, flood protection, and environmental education. Among the top five management actions interviewed stakeholders desired to be carried out in order to manage for the identified ecosystem services were: habitat protection, provision of rural support, enhanced stakeholder engagement and ecosystem restoration.

These following narratives of visions among local residents have been identified:

(A) Holistic and integrative landscape management: This vision acknowledges the role of many different parts and facets of the landscape and society. The importance of multiple visions and the role of both nature and people are recognized. While this vision acknowledges the importance of regulation and conservation measures, it also underlines the importance of supporting and enhancing environmental education and communication between stakeholders and policy-makers. Both natural and cultural resources are equally relevant. Respondent quote example: "*I envision a landscape where the protection of nature and its values and the use of natural resources for humans are fostered in a respectful manner. Where the respect and care of natural spaces are fostered and where the consumption and production can be promoted without impacting nature.*"

[1] STREAMLINE is a visual, narrative interview format from anthropology, made up of a series of colorful, laminated, A3 canvasses. Each canvas addresses a theme. Together they allow participants to create their visions by combining interactive features with visuals[11].

(B) Intrinsic values of vulnerable landscape: This vision highlights the importance of preserving and improving the natural values of Sierra de Guadarrama as well as regulating services (ecological processes). The vision often belongs to residents with higher ecological knowledge, more engaged with nature (i.e. reading about nature, visits to the natural areas or having an environment-related profession), not particularly long-term residents, older, richer and highly educated, living in more relatively isolated areas of the Sierra de Guadarrama. (i.e. Lozoya Valley). Respondent quote example: *"I would like regulation more focused on the conservation of biodiversity and not so focused on the uses we give people (tourism, urbanization, etc.). The is a need for increasing social awareness about the importance of natural resources"*. Variation of this vision focuses on landscape vulnerabilities, from such global threats as climate change (linked to the Catastrophic future perspective) to more local ones. The latter are linked to the recognition of the threats of being so close to a metropolis with more than five million inhabitants and include urbanization, tourism and sport. Specifically, an increase in anthropic pressures is attributed mainly to the declaration as of the National Park and the associated call effect that followed. This vision variation was often linked to residents living in more urbanized areas.

(C) Cultural values and sustainable use: This vision highlights the importance of maintaining local population, attracting new residents, integration and weaving of the local knowledge and traditions. It identifies the need for rural development measures to avoid abandonment and is largely based on a combination of considerations for cultural and provisioning ecosystem services such as aesthetic, recreational and spiritual values, sense of place and food or ethno-botanic resources provision. This vision was to some extent related to long-term female residents. Respondent quote example: "*I would like the local entrepreneurship to be strengthened so that rural depopulation is over and villages are not abandoned, but from my opinion, this not being done"* or *"I think it is important to recover the traditional uses for young people"*.

(D) *A*melioration of governance and participation: This vision highlights the importance and needs to improve management and regulation. It represents some residents' dissatisfaction with the management and governance system. Residents aligned with this view suggest that the current state of the landscape and its values cannot be preserved without more restrictive regulation and related measures. A general acknowledgement of the human pressures and threats in the landscape of Sierra de Guadarrama and related protected areas is identified in this vision. Respondent quote example: *"More control and regulation of uses is necessary, to achieve the recovery and naturalization of as much territory as possible"*. Variations of this vision also include considerations of the importance of ***social learning, participation and education.*** Specifically identifying the need for implementation of participatory processes including a wide range of actors (i.e. local residents, managers, stakeholders and policy-makers), but also better communication flows, environmental education and awareness-rising. Respondent quote example: *"A good communication program for the local population and foreigners is needed"* or *"The future is improbable. Awareness-raising and communication with people are needed to improve the state of Sierra de Guadarrama". "It is very important to work hard on education for both adults and children about the importance of care and respect for the environment around us"*.

2.3. Kromme Rijn and Utrechtse Heuvelrug regions, The Netherlands

The Utrechtse Heuvelrug and Kromme Rijn region is a highly multifunctional peri-urban landscape located in the Central Netherlands, next to a major city – Utrecht. It is under pressure from many competing claims and conflicting functions. Utrechtse Heuvelrug National Park features 10,000 ha of heathlands, grasslands and floodplains, and is the second-largest forest area in the country, featuring oak and beech trees and over 100 bird species. The Kromme Rijn area (219 km^2) is a dynamic cultural landscape with over 80 thousands residents. Some of the most prominent landscape functions include dairy farming, arable land and fruit cultivation, limited forestry (coppice systems), nature areas, cultural heritage, recreation (both by residents and visitors from outside the area).

2.3.1. Overview of approach

During 2019, the team conducted 58 semi-structured interviews: 3 with representatives of local authorities from Utrecht province and municipalities, 2 with representatives of environmental organizations involved in nature management in the area and 53 with recreationists at popular spots (most of whom are also residents either in the nearby big city Utrecht or within the case study area). To guide the interviews, we have developed and used a series of five A3 STREAMLINE canvasses[2]. The focus of interviews was on their vision for the area, importance of individual landscape functions (values), the extent of their knowledge about trade-offs between these functions. The survey also contained a spatial component, the respondents were asked to sketch on the map areas they are familiar in the landscape as well as those they envision to be more multi-functional or specialized in the future.

We complemented obtained interview data with analysis of relevant reports from completed projects and policy-documents from main stakeholder organizations such as the Utrecht province, municipalities, farmers association, forest and nature managers etc.

2.3.2. Identified visions and themes

(A) Inclusive cultural landscape for sustainable living: In this vision, an integrated approach to landscape management is adopted in which all parties such as governments, civil society organizations and market are involved and working together. Landscape-inclusive perspective is adopted, encouraging all participants to conduct an inventory of the landscape, its values and produce goals that take the landscape as a whole in the consideration as a basis for sustainable solutions to sectoral issues. As such management of this landscape fully embraces its multi-functionality to produce an attractive peri-urban mosaic. It's a constant balancing act between multiple interests such as agricultural production, forest management, biodiversity conservation, recreational use, tranquility, energy production, residential areas and others. Agricultural

[2] STREAMLINE is a visual, narrative interview format from anthropology, made up of a series of colorful, laminated, A3 canvasses. Each canvas addresses a theme. Together they allow participants to create their visions by combining interactive features with visuals[11].

production is an important carrier of this cultural landscape's values, that also requires space for economically sustainable agriculture. However, to reduce trade-offs with environmental issues resulting from intensification (e.g., nitrogen pollution), in many areas, especially in and around sensitive habitats, organic farming or other less intense options are practiced. Forests of the National park are managed in accordance with sustainable forest management approach. Some harvesting is performed to promote the development of habits and vulnerable species, but considerations of carbon sequestration and recreational values are also taken into account. (Smaller) nature areas are restored and maintained in the landscape. Recreational interests are met further through a large network of paths, cafes, historic estates as well as maintaining some of more "natural" areas. One of such areas is the National park, which presents a perfect opportunity to escape into nature and embrace the history for both for local residents and visitors.

(B) Productivity-oriented landscape: In this vision landscape is primarily shaped by the production of various goods and services. Land-owners are supported in their efforts. Agricultural production, namely dairy and fruit, represents one of the leading interests in the landscape. It's conducted using both intensive and organic approaches. In the National park, sustainable forest management is being practiced, where timber harvests occur. Renewable energy production is increased through the introduction of more windmills and solar panel farms in the area. There is some competition for land between these production interest. They also often conflict with biodiversity considerations, the latter is still present in the landscape to some extent, but often segregated to individual areas away from production units. Locally produced foods are bought by the residents, cultural values associated with the agricultural landscape are appreciated and constitute a local sense of identity.

(C) A peri-urban landscape of convenience: This vision centers around the extension of the road network (large high-way) and attractiveness of the area for residential purposes. Extension of the road network brings better transportation options for those who commute to cities or other regions. Additions to highways and other roads result in less auto traffic in narrow dyke roads result and thus higher comfort and safety of residents and visitors biking on them. As a result, residential areas have increased in the landscape. An influx of residents and better infrastructure also benefits to farmers for both transportation of their goods and local sales. However, due to the extension of residential areas some conflicts could arise for the land. Farming is performed in a rather conventional intensified way. Nature conservation is at the bare minimum and is more in a segregation (land sparring) mode. Large parts such as the National park remain, however some of the smaller areas in the mosaic have experienced encroachment either from agricultural or residential development. Remaining nature provides recreational opportunities and adds to the overall attractiveness of the landscape. Existing popular recreational sites such as estates have also been complemented by more facilities, such as cafes and goal courses. Recreation is less about connecting with nature and more about "walking through the park". The overall area presents a landscape that is attractive and convenient for residence with good infrastructure, some green spaces but lacks a local sense of identity.

(D) Environmentally-friendly landscape: In this vision landscape is largely shaped by environmental concerns such as biodiversity conservation, good quality drinking water and climate change mitigation. Actions are taken to not only protect plant and animal species well, but also actively ensure the preservation and recovery of populations of vulnerable species. Biodiversity conservation actions are not only present in existing natural areas, but also in agricultural and other areas. Together with biodiversity conservation, carbon sequestration represents an important consideration in forest management decisions. Farming is still practiced in the area, but mainly converted to organic. Locally-produced goods are bought by residents. Recreation is an important service, however there is less emphasis on the development of facilities and more on maintaining tranquil areas for visitors to enjoy.

2.4. Denali National Park, United States

Spanning over six million acres of taiga forest, alpine tundra, and snowy mountains, Denali National Park and Preserve in Alaska, USA, is one of the most spectacular parks on the planet. Established in 1917, Denali National Park is home to the highest peak in North America, Mount Denali (6190m), and is known for its expansive intact ecosystems. This protected area is home to fauna such as Dall sheep (*Ovis dalli*), Moose (*Alces alces*), Caribou (*Rangifer tarandus*), Gray wolves (*Canis lupis*), Grizzly bears (*Ursus arctos*), and many others. Over two million acres of the park are designated Wilderness that have the highest level of protection provided by the US Federal Government. About one million acres are designated preserve in which subsistence activities (e.g., fishing and hunting) are permitted. The park attracts many residents of adjacent communities and, hundreds of thousand visitors for its myriad recreation and subsistence opportunities. Management of the park and its resources are central to life in Denali, influencing the local economy, recreation, sense of community, subsistence use regulations, fish and game management, local governance, and education. However, Denali's landscapes are rapidly changing, impacting natural ecosystems and the human communities that depend on them.

2.4.1. Overview of approach

In 2019, the team completed initial stakeholder analysis resulting in identification of the following eight primary stakeholder groups in six communities surrounding Denali National Park and Preserve: 1) Education, 2) Environmental management, 3) Indigenous and non-native subsistence users, 4) Industrial tourism, 5) Energy, 6) Local business, 7) Local governance, and 8) Military.

Next, we conducted six recorded focus groups with a total of 41 participants focusing on understanding how residents characterize the social-ecological conditions of the region and drivers of change. These group discussions have also included individual fuzzy cognitive mapping exercises, a useful participatory method that has been utilized to analyze stakeholders' belief systems of a social-ecological context[16]. This method is an extension of cognitive mapping and aims to create graphical representations of mental models that are useful for decision-making in complex systems[17].

Additionally, we conducted 42 individual semi-structured interviews aimed at understanding participants' sense of place, perceptions of landscape change, key organizations in the region, knowledge of the landscape, and governance. Thirteen of these interviews included individual fuzzy cognitive mapping exercises, resulting in a total of 53 individual maps characterizing the social-ecological conditions of the Denali region.

2.4.2. Visions and themes

(A) Ambivalence toward tourism: In this vision ambivalence among residents in their discussions about the role of tourism in shaping the local communities around Denali protected areas was observed. Tourism supports local livelihoods through direct employment and revenue generated from visitors who purchase products from local businesses. Many tourists in the Denali region are part of an "industrial tourism" sector that brings cruise ship passengers to the park and employs non-US residents from Eastern European and Middle Eastern countries

during the summer months. Tourism is one of the largest economic drivers in the Denali Region and many residents rely on the benefits reaped by industrial tourism such as opportunities for local businesses. While many recognize the importance of industrial tourism, there is also concern about the implications of industrial growth (e.g., lack of investment in infrastructures like wastewater systems and public restrooms) on rural lifestyles. Changes in climate conditions and priorities for protected area management have focused investments on expanding winter and shoulder season tourism in Denali. A recent plan drafted by the National Park Service includes alterations to infrastructure, vehicle access, and year-round personnel to boost tourism in non-summer months, which has spurred conversations about industrial tourism growth and cultivated a sense of urgency to better understand visions for the future.

(B) Tensions around subsistence use: Subsistence use activities are pursued by an array of people in the Denali region, including settlers of European descent and indigenous Athabaskan peoples. These practices are instrumental in the formation of local identities, yet they vary across individuals, groups of people, and government agencies. Non-native residents associate subsistence use with a harsh landscape that requires self-reliance and in return allows for personal freedoms not available in urban areas. For Alaska Natives, subsistence is about the customary and traditional uses of an environment, which maintains their connection to places inhabited by the memories, spirits, and stories of their ancestors. From residents' perspectives, the desired future of subsistence use would include acknowledgement of the sovereignty of Native Villages and respect for the territorial authority of Ahtna, as well as shifts in subsistence hunting seasons and regulations to better align with altered species distributions due to climate change. A range of impacts on cultural and traditional ways of life complicate the process of realizing visions for the future, including industrial and commercial development, within state tourism whereby people from larger metro areas come to hunt in places likely the Denali Highway, and lingering impacts from colonialism. An appreciation for wildlife, balanced ecosystems, and recreation have also been expressed as important factors that shape the activities of people who exercise their right to subsist off the land.

(C) Commitment to sense of community: In this vision strong human-place bonding emanated from discussions with residents and indicated that sense of community was one of the central qualities of the Denali region. Sense of community was rooted in a deep-seated appreciation for local places and a shared interest in preserving these environments. Despite the remote nature of the area, there is a very tight-knit network of people that support one another. However, some have expressed concern about the ongoing development and technological advancements that are diminishing the need for neighbors to rely on one another. Visions for maintaining the current sense of community have an underlying assumption that rural lifestyles need to be preserved; however, many people recognize the tradeoffs being made between the financial benefits being reaped from tourism and threats to the communal bonds that form from interactions with neighbors.

(D) Desire for open access to land: In this vision widespread concern among local residents about preserving the freedom to access land and maintain Alaska's unique capacity for self-reliance and self-determination has been detected. Residents have acknowledged the need to find

balance and compromise to create some land-use regulations but feel strongly about maintaining personal freedom. That is, being free to go outside and enjoy everything that the Denali landscape has to offer is central to the narrative around desired futures for accessing land. Several communities have expressed interest in unfettered access as a way of preserving historical connections to local places. Subsistence users, as part of another key vision for the future of life in Denali, are particularly dependent on continued open access to land. Alaska Native Corporations and Native Villages have expressed interest in more control over land-use practices, including co-management of wildlife resources, which would, in turn, lead to restricted access to non-shareholders. Thus, land access is a contested topic yet cornerstone of the desired futures for Denali communities and family relationships, wilderness, and wildlife.

Vehicles for change that are threatening future visions:

A rapidly changing climate: Protected area resources and their surrounding communities have been experiencing unprecedented and rapid warming, especially at higher latitudes like Interior Alaska where climate change is magnified. In the Denali region, shifting weather patterns, hydrology, and vegetation have become primary drivers of change, with residents observing and experiencing impacts on the traditional Interior Alaskan way of life. Longer summers, less snow, unstable infrastructure, increased temperature, more frequent fires, drying ponds, thawing permafrost, retreating glaciers, moving tree lines, faster vegetation growth, shifts in tourism seasons, and altered distributions of wildlife are some of the tangible changes experienced by Alaskan residents. These changes are being considered on a local and personal basis rather than at a distant, global scale. Many residents express awareness of climate change – though not all label it as such – through observations of impacts on wilderness, subsistence, tourism and energy industries, and sense of community. These changing conditions have influenced preferences for public agencies to increase fire management efforts, repair infrastructure that is vulnerable to thawing permafrost, and provide for adaptive management of subsistence activities. These changes are challenging traditional resource management paradigms and necessitating the use of innovative strategies for grappling with change.

Public land management agencies: A majority of land in Alaska is public, and as a result, agencies managing these spaces are fundamentally important for shaping the social-ecological landscape. Both federal (e.g., The National Park Service and Bureau of Land Management) and state (e.g., Alaska Department of Fish and Game, and Alaska Department of Natural Resources) agencies make important decisions regulating land use in the Denali region. Historically, there have been multiple, competing preferences for managers that prioritize preservation, conservation, biodiversity, recreation, subsistence use, and natural resource extraction. As the primary decision-making entity for public lands, these agencies are positioned to act on local preferences for the future. Traditionally, public land management has been top-down and residents adjacent to protected areas in Denali have expressed preferences for agencies to be more inclusive and consider multiple uses of the Denali landscape in the future.

3. Conclusions

Views on nature and conservation have been changing over the years. They often overlap, however four rather distinct perspectives on human-nature relations have been identified: from protecting wilderness and establishment of protected areas in "nature for itself" vision, to battling extinction of species and habitat loss in "nature despite people", to taking an ecosystem approach in "nature for people" and focusing on resilience, adaptability and socioecological systems in "people and nature" [5]. Biodiversity is still declining, at the same time human population continues to grow, suggesting that potential for conflicts between the broader concepts of protecting "nature for itself" or protecting nature in a "nature for people" mode is increasing. Existing models and visions are no longer enough, there is a need for new approaches towards balancing human activities and needs and the protection of nature, based on visions that ensure meeting this dual challenge ("people and nature" in [5] or 2050 vision of "living in harmony with nature" presented in the Zero draft of post-2020 global biodiversity framework of the CBD([2])).

We have mapped out visions identified for case study areas on the axes of these four perspectives (see Figure 1). Shapes of these visions are approximations and should be regarded as such, depending on specifics the vision could play out slightly differently. This exercise demonstrates that most of the identified visions contain features of at least two out of four overarching vision perspectives, with some of them having the "leading" role in shaping the vision. Some visions share much of overlap between one another forming clusters, for examples "landscape of convenience" in Netherlands and "productivity-oriented landscape" in Netherlands and Sweden. A few themes emerged in visions across all four areas such as transparency and participation of stakeholders in decision making, the importance of preservation of biodiversity and recreational use. The Swedish, Spanish and Dutch study areas share one vision archetype, namely the holistic/integrated approach to the management of the area. Access to the land, sense of community and substance use issues are most important in the Denali Park, U.S. Some of the threats identified for the Spanish area (such as from tourism) have also been raised in discussion for the area in the U.S.

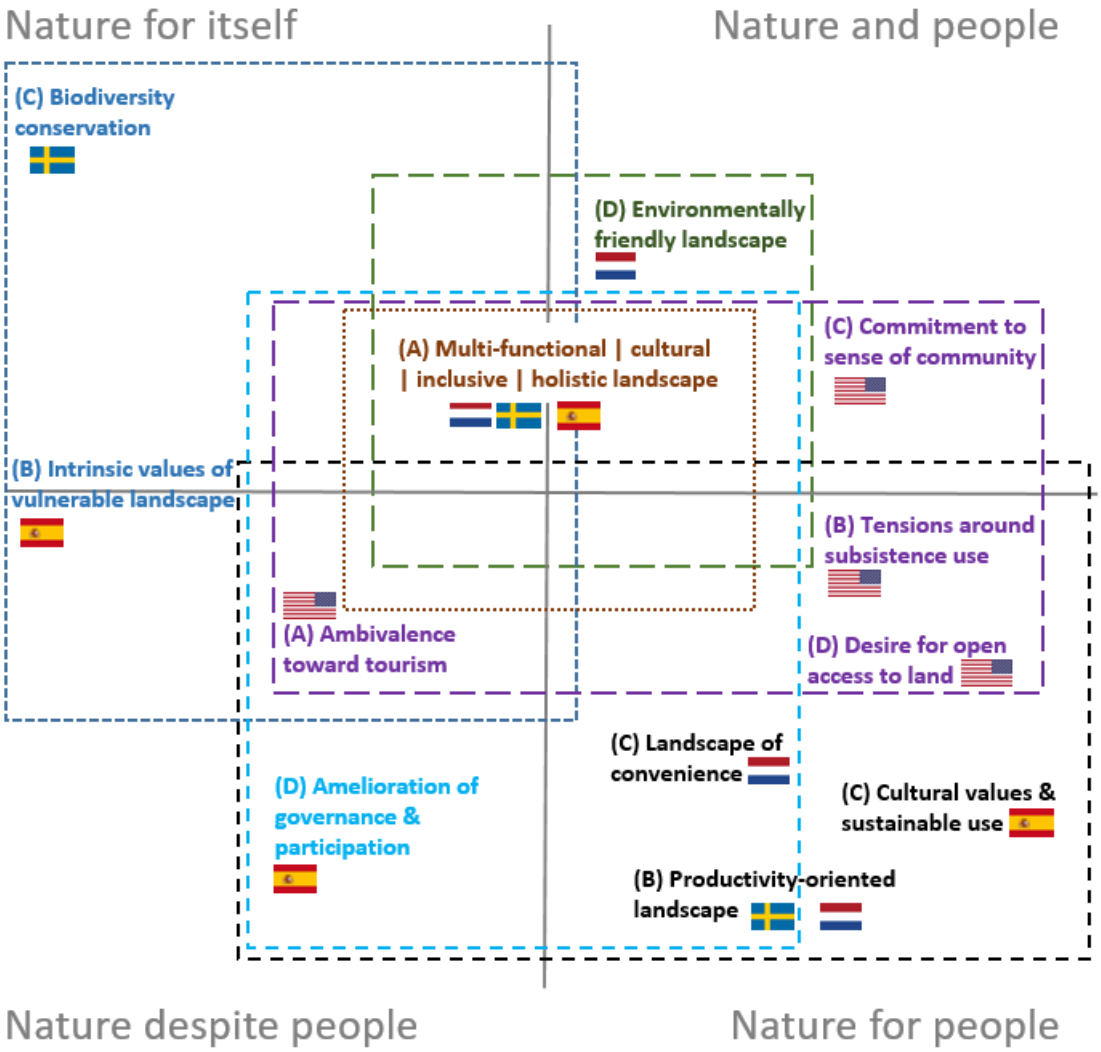

Figure 1: Mapping visions identified for case study areas on the topical gradients of four perspectives. Color of the font and border have been synchronized. The boundary of the shape presents an approximation of how each vision includes various perspective on people-nature relations, the exact location of the title of the vision is not indicative of their position on axes but rather was chosen in order to ensure readability of the figure. Some visions have been clustered together as belonging to the same (similar) shaped.

These visions lay foundation for future work and will be further developed together with stakeholders over the course of the project. ***Next steps in ENVISION project*** include:

- quantitively assessing the consequences of different visions and scenarios on biodiversity, ecosystem services and human well-being
- testing how and to what extent social learning about consequences of each vision changes values and enables development of collectively defined visions;
- better understanding how uncertainties in the pathways towards collectively defined visions can be dealt with and translated into more resilient protected area management strategies;
- proposing inclusive governance models and instruments that are sensitive to power relations and stakeholders' collectively defined visions and capable of informing protected area decision-making at multiple scales[7].

For more information about the ENVISION project please visit project's website (www.inclusive-conservation.org) or contact Prof. Christopher Raymond at christopher.raymond@slu.se

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