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GUIDELINES FOR DEVELOPING EMERALD SITES MANAGEMENT PLANS IN AZERBAIJAN



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Guidelines for Developing Emerald Sites Management Plans in Azerbaijan

Samur-Yalama National Park



Shahdag National Park



Convolvulus Persicus in the Absheron National Park



Mud volcanos of Baku & Absheron peninsula

**Emerald sites
in Azerbaijan**

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Abbreviations and acronyms

ADB	Asian Development Bank
ANAS	Azerbaijan National Academy of Sciences
AOS	Azerbaijan Ornithological Society
CBD	Convention on Biological Diversity
ECF	Eco-Corridors Fund for the Caucasus
ECP	Ecoregional Conservation Plan
EEA	European Environment Agency
EU	European Union
EUNIS	European Nature Information System
EU4Environment	The “European Union for Environment” (EU4Environment) Action
GBF	Global Biodiversity Framework
GEF	Global Environment Facility
GIS	Geographic Information System
GIZ	German Development Cooperation (<i>Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH</i>)
ICARCS	International Commission on Aquatic Resources of the Caspian Sea
IUCN	International Union for Conservation of Nature
KfW	Kreditanstalt für Wiederaufbau
MENR	Ministry of Ecology and Natural Resources
NBSAP	National Biodiversity Strategy and Action Plan
NGOs	Non-governmental organizations
OECD	Organisation for Economic Co-operation and Development
PA	Protected Area
RECC	Regional Environmental Centre for Caucasus
SPAs	Specially Protected Areas
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
USAID	U.S. Agency for International Development
WWF	World Wildlife Fund

Executive Summary

The presented guidelines provide a framework for management plan development specifically tailored to the unique characteristics of the Emerald Network sites in Azerbaijan. They have been developed in the framework of the EU4Environment Programme aimed at preserving the natural capital of Azerbaijan and increasing its people's environmental wellbeing by supporting environment-related action, unlocking opportunities for greener growth, and setting mechanisms to better manage environmental risks and impacts.

The Emerald Network under the Bern Convention aims to protect Europe's vital and endangered species, habitats, and ecosystems. As a Bern Convention member, Azerbaijan needs to develop management plans for its Emerald Network sites to support this conservation effort while considering the unique ecological features and administrative structures of each site. These guidelines ensure the survival of threatened species, promote local engagement, and offer training for effective management, emphasizing the importance of safeguarding Azerbaijan's biodiversity.

The guidelines emphasize the importance of ecological integrity, stakeholder engagement, adaptive management, sustainable use, and long-term sustainability, among other principles. The management planning process is a cyclical approach that involves the preparation, implementation, monitoring, and revision of plans, ensuring that conservation measures remain adaptable and effective over time. While these principles are globally applicable, in Azerbaijan's context there is a special focus on the protection of species and habitats that may be common locally but are rare from a European perspective. This includes species listed in both the Bern Convention and Azerbaijan's national Red Book.

The legal and institutional framework for protected areas in Azerbaijan - primarily governed by Law "On Specially Protected Natural Areas and Objects" (No 840-IQ) - addresses the management and protection of specially designated protected areas. However, current legislation lacks provisions for the preparation of comprehensive site management plans, a standard practice internationally. To address this gap, involvement from diverse stakeholders, including the Ministry of Ecology, governmental agencies, and NGOs, is essential for the successful creation and implementation of these management plans.

The candidate Emerald sites in Azerbaijan cover approximately 19.4 percent of the country's terrestrial surface and showcase diverse habitats crucial for the protection of species listed under the Bern Convention and the Azerbaijani Red Book. These sites, which include unique ecosystems like brackish wetlands, semi-desert landscapes, relict forests, and significant nesting and resting sites of rare bird species, are underrepresented in conservation efforts, especially regarding the 30:30 goal of the Global Biodiversity Framework. To preserve Azerbaijan's rich biodiversity and counteract anthropogenic pressures, dedicated conservation strategies are needed to enlarge and manage the Emerald Network significantly.

The management plan for protected areas in Azerbaijan focuses on long-term conservation objectives, targeting the preservation of biodiversity, sustainable use of resources, and balancing visitor activities with minimal environmental impact. These objectives prioritize the habitats and species protected under the Bern Convention, integrate broader international conservation goals, and are specific, numeric, and measurable. Complementary to these goals, national programs, such as the National Biodiversity Strategy and Action Plan (NBSAP) and the Ecoregional Conservation Plan for the Caucasus, guide and reinforce conservation efforts in the region.

Emerald sites in Azerbaijan are divided into zones based on their characteristics and management needs to ensure conservation and account for ecological, cultural, and recreational values. According to Azerbaijan's laws, national parks have specific zones such as special protection, tourism, and sustainable use zones, and since 2014, Sanitary Protection Zones that act as buffer zones around

protected areas to mitigate negative impacts. Currently, protected areas span 10.3 percent of Azerbaijan's territory, with distinct classifications under the International Union for Conservation of Nature (IUCN), emphasizing the need to expand these areas and the Emerald Network to achieve broader conservation goals.

Emerald sites in Azerbaijan face numerous threats due to varying geographical conditions, with habitat loss, climate changes, pollution, invasive species, and poaching being primary concerns. These threats have different impacts based on the location; for example, deforestation affects mountain regions, pollution is prominent near the Caspian Sea and in agricultural areas, and waterfowl poaching is a significant concern along the coastline of the Caspian Sea. While numerous documents and strategies exist to mitigate these threats, site-specific assessments are crucial to tailor conservation efforts and ensure sustainable use of biological diversity in the region.

Azerbaijan's Emerald sites, designated for their exceptional biodiversity and ecological significance, have various protection statuses, such as national parks, state strict reserves, and state nature sanctuaries, with specific allowances for activities like tourism, research, and economic activities to ensure they do not interfere with the protection of habitats and biodiversity of the sites. The conservation and management of these sites emphasize safeguarding key habitats, protecting endangered species, and maintaining essential ecological processes. Proposed strategies to ensure effective conservation include establishing corridors between protected areas, providing financial incentives for wildlife protection, raising public awareness, and advocating for legislative reforms targeting illegal activities and better management planning.

Azerbaijan's Emerald sites offer essential ecosystem services that underpin the culture, traditions, and wellbeing of local communities, especially in mountain areas where they provide resources like water and food, as well as recreational opportunities. Sustainable site use and development center on principles such as fostering community engagement, promoting sustainable livelihoods, enhancing community identity, and encouraging cultural exchange. These principles help maintain a balance between conserving natural resources and promoting the cultural and economic prosperity of the communities residing within these sites.

A comprehensive biodiversity monitoring program will assess the efficacy of conservation measures in protected areas, with emphasis on specific habitats and species designated by the Bern Convention. Monitoring involves standardized data collection methods for various species and thorough analysis to identify population trends, which is then reported with predictions for future species dynamics. However, a decrease in scientific staff in Azerbaijan's protected areas has challenged these efforts.

Raising awareness about Emerald site significance is essential for their conservation. Awareness strategies include education programs targeting local communities, partnerships with educational institutions, media engagement, collaboration with NGOs, and establishing interpretive signage and visitor centers. By adopting these approaches, Emerald sites can promote awareness and understanding among local communities, leading to their active conservation.

Stakeholder involvement is vital for managing Azerbaijan's Emerald sites. Inclusion mechanisms ensure various group perspectives are considered, emphasizing collaboration with local communities and indigenous groups. The Ministry of Ecology and Natural Resources coordinates these activities, with other ministries, organizations, and the Public Council contributing their expertise. Initiatives highlight Azerbaijan's commitment to stakeholder engagement, sustainable practices, and biodiversity conservation.

Effective Emerald site management relies on capacity building and training. Azerbaijan must assess capacity-building needs, establish training programs, participate in knowledge exchange, foster bilateral cooperation, and introduce regulations and awareness campaigns. Such initiatives will boost the expertise of those involved in managing Emerald sites.

Azerbaijan's state budget primarily funds environmental protection, with 300 million manats (US\$176 million) allocated annually. However, funding shortfalls exist, leading to donor financing from organizations like the Kreditanstalt für Wiederaufbau (KfW), Asian Development Bank (ADB), United Nations Development Programme (UNDP), and even some businesses, like the State Oil Company.

While protected areas should primarily rely on government funding, budget constraints may require more fundraising efforts.

Regular reporting under the Bern Convention evaluates compliance and conservation efforts. The convention also uses independent expert evaluations, a six-year reporting cycle, and a unique case-file system that accepts complaints from NGOs or private citizens, to further facilitate monitoring and adherence to the convention. Azerbaijan provides biennial reports on exceptions made under the convention and is encouraged to provide general reports every four years. Monitoring systems within Emerald sites provide data crucial for these reports.

Pusa caspica



Ursus arctos syriacus



Cazella subgutturosa



Panthera pardus saxicolor

Endangered mammal species of Azerbaijan

Figure 1. Map showing the overlay between Azerbaijan Emerald site and protected areas

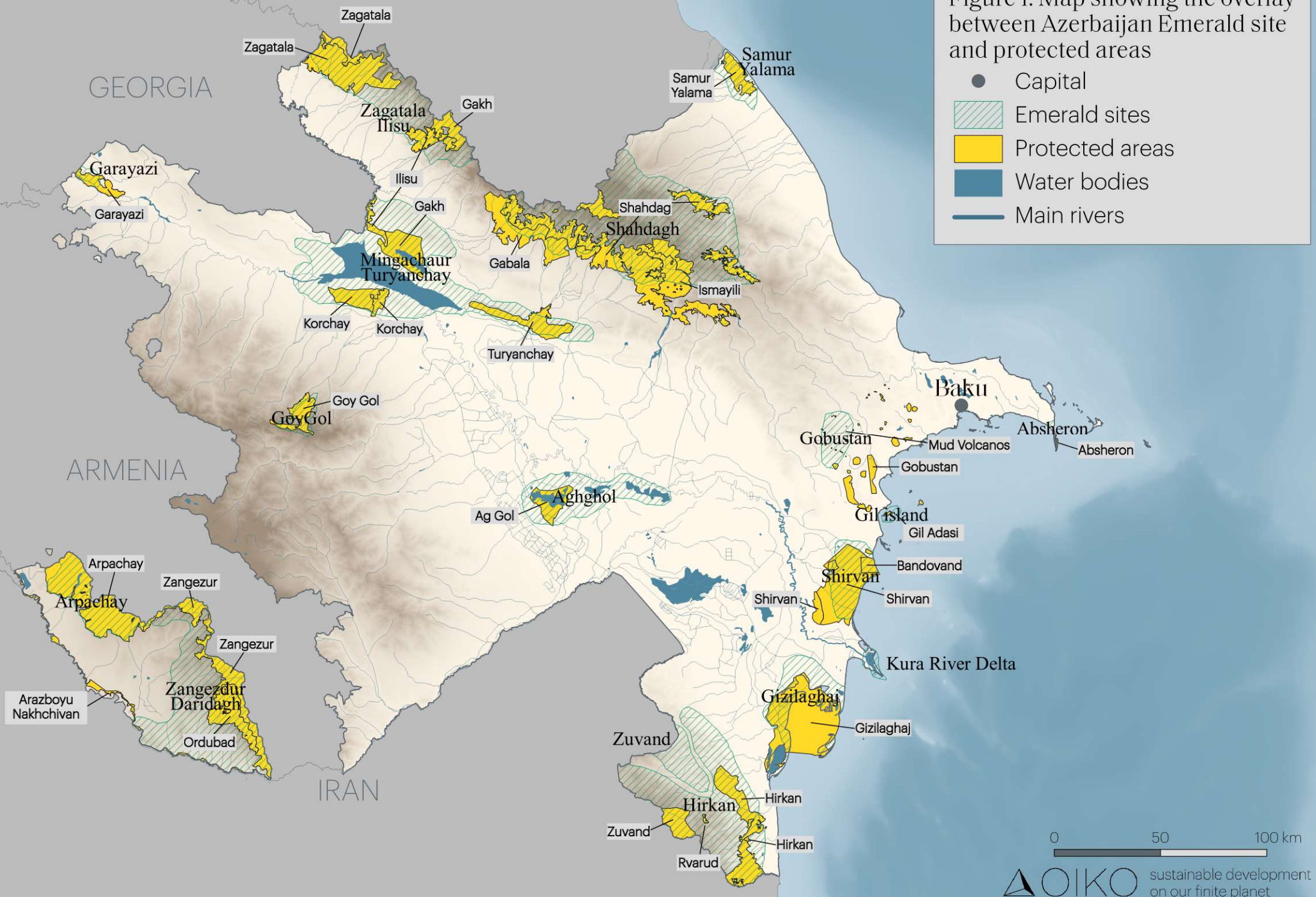


Table 1. Percentage of overlap between Azerbaijan Emerald sites and protected areas

Emerald site code	Emerald site name	Emerald site size (in ha.)	Protected area name	IUCN category	Type of protected area	Protected area size (in ha.)	Total ha. of protected area inside the emerald site	% Protected area coverage	% National park coverage	% Sanctuary Managed. Reserve coverage	% Strict Nature Reserve coverage	% of Emerald site covered by PAs
AZ0000001	Zangezdur Daridagh	179,049	Arazboyu Nakhchivan	IV	Sanctuary Managed Reserve	9,499	533	0		16		38
			Ordubad	IV	Sanctuary Managed Reserve	27,815	27,815	16		16		
			Zangezur	II	National Park	41,268	39,727	22	22			
AZ0000002	Mingachaur Turyanchay	326,258	Gakh	IV	Sanctuary Managed Reserve	37,166	25,620	8		13		22
			Ilisu	I	Strict Nature Reserve	17,512	5,090	2			9	
			Korchay	I	Strict Nature Reserve	4,839	4,546	1			9	
			Korchay	IV	Sanctuary Managed Reserve	15,083	14,837	5		13		
			Turyanchay	I	Strict Nature Reserve	23,083	19,740	6			9	
AZ0000003	Zaqatala Ilisu	138,802	Gakh	IV	Sanctuary Managed Reserve	37,166	11,454	8		13		51
			Ilisu	I	Strict Nature Reserve	17,512	10,070	7			38	
			Zaqatala	I	Strict Nature Reserve	47,412	42,489	31			38	
			Zaqatala	IV	Sanctuary Managed Reserve	6,959	6,882	5		13		

AZ0000004	Shahdagh	352,435	Gabala	IV	Sanctuary Managed Reserve	39,671	8,482	2		6		31
			Ismayily	IV	Sanctuary Managed Reserve	23,426	13,428	4		6		
			Shahdag	II	National Park	130,378	89,645	25	25			
AZ0000005	Hirkan	206,590	Hirkan	II	National Park	40,581	35,844	17	17			21
			Hirkan	IV	Sanctuary Managed Reserve	2,317	2,237	1		4		
			Rvarud	IV	Sanctuary Managed Reserve	510	510	0		4		
			Zuvand	IV	Sanctuary Managed Reserve	14,536	6,121	3		4		
AZ0000006	Zuvand	29,000										0
AZ0000007	Shirvan	59,778	Bandovan	IV	Sanctuary Managed Reserve	4,610	4,610	8		8		85
			Mud volcanos of Baku and Absheron Peninsula	I	Strict Nature Reserve	12,266	210	0			2	

Introduction

Purpose and scope of Emerald site management plan guidelines

The development of effective management plans for Emerald Network sites is crucial for the conservation and sustainable management of biodiversity in Azerbaijan. Established under the Bern Convention, the Emerald Network aims to safeguard Europe's most valuable and threatened species, habitats, and ecosystems. As a member state, Azerbaijan has committed to designating and managing its own Emerald Network sites to contribute to this continental conservation effort.

The guidelines presented here provide a framework for management plan development specifically tailored to the unique characteristics of the Emerald Network sites in Azerbaijan, while taking the existing protected areas system into account. The Emerald sites encompass diverse ecosystems, ranging from wetlands and forests to mountains and semi-desert areas, each with their own ecological importance and conservation needs. By adhering to these guidelines, managers and stakeholders can ensure that these sites are effectively managed within the specific context, challenges, and opportunities they present.

The specific lists of species and habitats defined for the development of the Emerald Network are laid down by the Bern Convention in Resolution No. 4 (1996) for habitats and Resolution No. 6 (1998) for species. The management plans to be developed for each Emerald Network site should ensure the long-term survival of those species and habitats.

The guidelines also aim to protect the strictly protected plant and animal species listed in Appendices I and II of the Bern Convention, as well as ensure the wellbeing of species listed in Annex III, and all species listed in the Red Book of Azerbaijan (Government of Azerbaijan 2023). The overarching goal is to tailor all measures to meet the specific needs of all these species and habitats. By focusing on the conservation of threatened and endangered species, the site management plans can significantly contribute to overall biodiversity conservation efforts in the country.

In addition, the guidelines aim to address the varied management types and administrative affiliations of different parts of the sites. This includes the different levels of anthropogenic pressures, variations in landscape features, and the ecological connectivity between different sections of the sites. It also considers the management of the nationally established protected areas, as their administrative structures are the ones in place to implement the management on site and highlights additional resource needs to meet the management goals both for national protected areas and Emerald sites. As most Emerald sites encompass a larger area than the national protected areas, this is an important aspect.

Furthermore, the guidelines underscore the significance of protecting key habitats within the Emerald Network sites. These habitats include forests, wetlands, subalpine and alpine areas, and other unique ecosystems that support a wide range of species, including endemic and biome-restricted species. Ensuring the effective management of these habitats is essential for the long-term preservation of Azerbaijan's biodiversity.

Local community engagement and collaboration form another vital aspect of these guidelines. By involving local stakeholders, recognizing their traditional knowledge, and increasing public awareness through educational initiatives, the management plans can benefit from local support and contribute to sustainable livelihoods alongside conservation objectives.

Finally, the guidelines highlight the need for specialized training in nature conservation and management of Specially Protected Areas. By providing capacity-building opportunities for staff and representatives from local communities, the management plans can foster enhanced expertise and a shared sense of responsibility for the long-term success of the Emerald Network sites.

In conclusion, developing comprehensive management plans for Azerbaijan's Emerald Network sites in accordance with these guidelines is crucial to ensure effective conservation, sustainable management, and active community involvement. By implementing these plans, Azerbaijan can fulfill its commitments under the Bern Convention, contribute to continental biodiversity conservation efforts, and safeguard its unique natural heritage for future generations.

Overview of candidate Emerald Network sites and their significance in Azerbaijan

In Azerbaijan, a total of 17 sites are candidates for Emerald Network inclusion. These sites cover a general area of 1,679,533 hectares, which accounts for approximately 19.4 percent of the country's terrestrial surface (see 0). Among these sites, seven exhibit a composition typical of semi-desert and wetland environments, except for Gobustan, which does not feature significant wetland areas. These sites include Aggol, Shirvan, Gyzylagach, Absheron, the Kura Delta, and Gil Island.

The remaining six sites are primarily characterized by woodland or forest ecosystems. Among them, four are mountain forest sites, namely Zaqatala-Ilisu, Shahdag, Hirkan, and Goygol. Two of the sites are plane forest sites, namely Karayazi and Samur-Yalama. Additionally, one site consists mainly of mountain steppe, situated at an elevation of approximately 2,000 meters and higher (Zuvand). Another site showcases the typical landscapes of dry mountains (Arpachay), while one of the largest sites, Zangezur-Agridag, encompasses high mountain areas that include both forested regions (Shahbuz Strict Reserve area) and arid open mountains with scattered shrubs and bushes, reaching elevations of up to 3,500 meters (sub-Nival and Nival belts).

The significance of forest sites in Azerbaijan cannot be overstated, considering that forests only cover approximately 11 percent of the country's area and strict regulations prohibit forest cutting, except for certain special cases that require specific permission. Most forests in Azerbaijan comprise three main types: oak-hornbeam forests in the lower forest belt, beech forests in the middle forest belt, and mixed forests containing species such as maple, elm, and eastern oak (*Quercus machrantera*) in the higher forest belt. Within the subalpine belt of these mountainous areas, there are patches of beech forests mixed with poplar (*Populus tremula*) and willow species. In drier regions, there are notable pine forest areas, including the common Caucasian pine (*Pinus kochiana*) forest areas.

It is important to mention the remarkable Hirkan forest, located in the lower forest belt and ranging up to approximately 500 meters in elevation. This relict forest is home to numerous species endemic to the Hyrcan forest region and features notable trees such as the iron tree (*Parrotia persica*), Lankaran acacia (*Albizia julibrissin*) and the chestnut-leaved oak (*Quercus castaneifolia*). Above 1,000 meters, there are no forests in the Talish mountains due to the climatic characteristics of these regions. Another noteworthy forest is the specific dry forest found in the foothills (low forest belt up to 600 meters in elevation) in the Mingachevir-Turianchay area, which includes the Ellar Oyugu Strict Reserve, housing the world's only forest of eldar pine (*Pinus eldarica*), a truly unique feature.

The wetlands of Azerbaijan hold immense importance, particularly due to historical hunting practices. Until the 1970s, approximately 2 million ducks were hunted annually. Several million waterbirds are present during wintering and several tens of millions during the annual migration in spring and autumn. The inland and coastal wetlands of Azerbaijan offer optimal conditions for the survival and feeding of a vast number of waterbirds, primarily from the Anseriformes order. This includes various duck species, including threatened species such as the marbled teal and ferruginous duck.

The brackish water found in Azerbaijan's wetlands makes them one of the most productive ecosystems in the world. These wetlands, combined with the presence of semi-desert plants that produce seeds during the wintering period of migratory birds in Azerbaijan, provide food for millions of waterbirds. Notably, Azerbaijan is home to the largest wintering population of the little bustard worldwide, with estimates reaching up to 200,000 birds.

The dry mountain landscapes of Zangezur-Agridag, Arpachay, and Zuvand sites create suitable habitats for specific dry mountain bird species, including the trumpeter finch, desert finch, pale sparrow, and many others. These species are unique to these regions and are not found elsewhere in Azerbaijan. It is worth noting that many of these species are listed in the Red Data Book of Azerbaijan, emphasizing their conservation significance.

General principles of site management planning

The guidelines for Emerald site and protected area management aim to ensure the effective conservation and sustainable use of these areas, which are of exceptional ecological importance.

The general principles of modern protected area management planning include:

- **Ecological integrity.** Ensure the conservation of biodiversity and ecological processes within the protected area, including the maintaining natural habitat and ecosystem function.
- **Stakeholder engagement.** Involve local communities, indigenous peoples, and relevant stakeholders in the decision-making processes and in managing the protected area to promote inclusivity, shared responsibility, and collaboration.
- **Adaptive management.** Apply a dynamic and iterative approach to management and incorporate monitoring, evaluation, and feedback mechanisms to adjust management strategies based on new information and changing circumstances.
- **Sustainable use.** Promote sustainable and compatible economic activities within the protected area that contribute to local livelihoods and minimize negative impacts on biodiversity and ecosystems.
- **Connectivity and landscape-level planning.** Consider the larger ecological context and connectivity of the protected area, including corridor, buffer zone, and adjacent landscape integration into the management plan to enhance biodiversity conservation and ecological resilience.
- **Climate change adaptation.** Incorporate strategies and actions to address climate change impacts on the protected area, including measures to enhance ecosystem resilience, reduce carbon emissions, and support local communities in adapting to changing conditions.
- **Education and awareness.** Implement programs to raise public awareness and understanding of the value and importance of protected areas, promote environmental education, and foster a sense of stewardship among visitors and local communities.
- **Collaboration and partnerships.** Establish and maintain effective partnerships with government agencies, non-governmental organizations, research institutions, and other relevant stakeholders to leverage resources, expertise, and support for the effective management of the protected area.
- **Compliance and enforcement.** Develop and implement regulations, policies, and enforcement mechanisms to ensure adherence to conservation objectives, prevent illegal activities, and address potential threats to the protected area.
- **Long-term sustainability.** Ensure the long-term financial and institutional viability of the protected area by establishing sustainable funding mechanisms, capacity building, and integrating protected area management into broader regional and national planning processes.

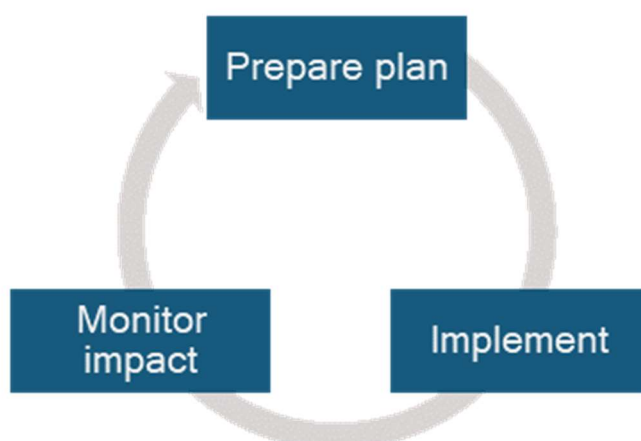
The principles of protected area management planning apply equally for Emerald and Natura 2000 sites, as well as national protected areas. Guidance in this respect is given by the IUCN (Thomas *et al* 2003), Bern Convention (Opermanis 2014, Dimitrova *et al.* 2015), and the European Union (Management of Natura 2000 sites)0. 0 provides the comprehensive proposed structure of a site management plan.

The two objectives of management measures in Emerald sites are as follows (Dimitrova *et al.* 2015):

- **Increase the available habitat** to increase the available habitat for species and ensure the existence of suitable pathways for species dispersal, and to underline the benefits from Emerald Network sites for mitigating the impacts of climate change, reducing vulnerability, and increasing resilience for species and habitats.
- **Enhance the diversity and resilience of the network.** Biodiversity depends on the protection and management of designated sites. These sites are central for ensuring that biodiversity can adapt to a changing environment.

The management planning cycle is a systematic approach to effectively manage natural resources and protected areas. It involves preparing a plan, implementing it, monitoring impacts, and reviewing the next plan for improvements0. This cycle ensures ongoing evaluation and adaptation to promote sustainability and conservation. The management plan is a document valid for at least for five, or ideally, 10 years. It is made operational with the elaboration of yearly work plans aiming to fulfill the management objectives of the management plan itself.

Figure 1. The management planning cycle



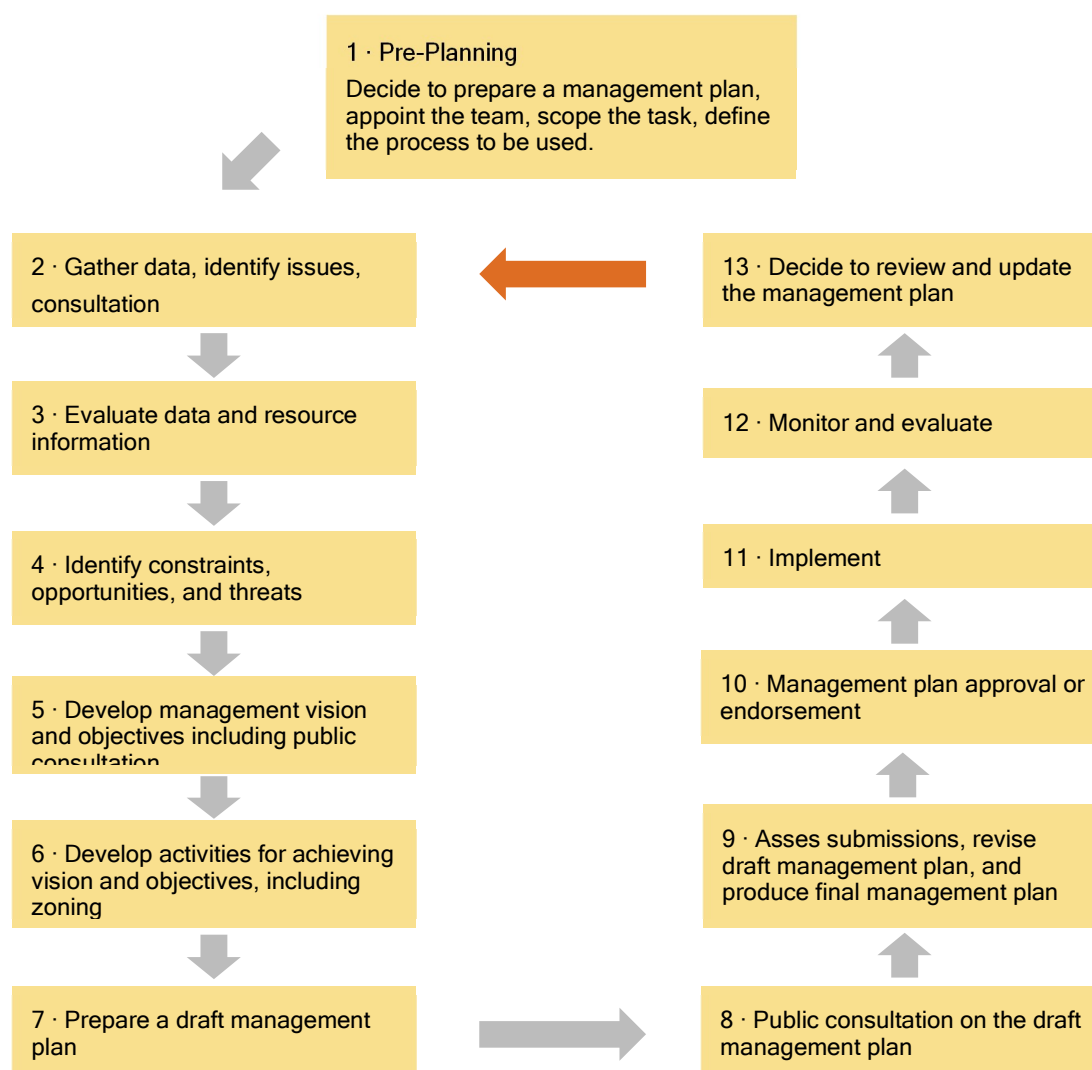
The management planning cycle (Figure 1) begins at the pre-planning stage, with the decision to prepare a management plan. This is followed by a team appointment, task scoping, and defining the process to be used. Next is data gathering, which involves identifying issues and conducting consultations to collect relevant information which undergoes evaluation and analysis. Constraint, opportunity, and threat identification is an important step, where factors that may impact the management planning process are identified and analyzed. The next step is to develop the management vision and objectives for at least one decade, which includes engaging in public consultation to gather input and feedback on the management vision. The next step develops activities for achieving the vision and objectives, along with zoning strategies.

A draft management plan is prepared based on the above steps, followed by public consultation on the draft to gather further input and suggestions. Submissions are assessed and the draft plan is revised accordingly to produce the final management plan. The final plan is then approved or endorsed, marking an important milestone in the process. Figure 2 summarizes the steps of management planning.

Management plan implementation begins with executing and breaking down planned activities into yearly work plans. Monitoring and evaluating these activities is crucial to meet the overall management objectives in general and the protection of species and habitats in particular. The cycle closes by evaluating the previous management plan and developing a reviewed management plan. The reviewed management plan - based on the previous one - considers new information, changing circumstances, or specified timelines and ensures the management plan remains relevant and adaptable over time.

The management plan principles described above are universal, but an Emerald Network plan must keep the European perspective in mind. Species and habitats abundant in Azerbaijan can be rare in a European context and listed in the Appendices 1, 2, and 3 of the Bern Convention. Azerbaijan is obliged to guarantee their protection, (see species and habitats list for Azerbaijan in 0) and the challenge is to protect species and habitats listed under both the Bern Convention and the national Red Book for Fauna and Flora of Azerbaijan (Government of Azerbaijan 2023).

Figure 2. Flowchart showing the process and cycle of developing management plans for protected areas



Source: IUCN, 2003

Legal and Institutional Aspects

It is important to embed the management planning process for Emerald sites into the existing legal and institutional framework of Azerbaijan. Thus, we provide overview on the current legal situation in Azerbaijan and formulate recommendations to make the whole system work well.

The primary legislation governing the management and organization of protected areas in Azerbaijan is Law No 840-IQ, titled “On Specially Protected Natural Areas and Objects”. Enacted on March 24, 2000, this law establishes the legal framework for the organization, protection, and conservation of specially designated natural areas and objects within the country. Article 45 of the above-mentioned law addresses state control over the protection, conservation, and use of these areas and objects. Its purpose is to oversee the condition of these sites, ensure conservation, measure implementation, conservation, restoration, and appropriate use, as well as to enforce compliance with the regulations and requirements outlined by the legislation. The relevant executive authorities are responsible for carrying out state control in accordance with their assigned powers.

State control in relation to protected areas involves the following activities:

- Verifying the implementation of protective and restoration measures for the state nature reserve fund.
- Checking documents related to the authorized use of specially protected natural areas and objects, inspecting vehicles, ships, hunting tools, acquired products, and other items in accordance with legal provisions, and confiscating tools, devices, and items that have been used in violation of the law or illegally obtained, along with relevant documentation.
- Detaining individuals who have violated the legislation concerning specially protected natural areas and objects, or those who have committed criminal or administrative offenses, in accordance with the law, and handing them over to law enforcement agencies.
- Preparing administrative case reports concerning violations in the field of protection and use of specially protected natural areas and objects.
- Issuing mandatory instructions and implementing other measures to address violations in the protection and use of specially protected natural areas and objects.

Regulations approved by the relevant executive authority determine the specific rights and responsibilities of officials in charge of specially protected natural areas.

The legal status and operational guidelines for state reserves and national parks are outlined in the Common Regulations approved by Cabinet of Ministers Decree No. 531 on July 4, 2001. These regulations provide an overarching framework for protected area establishment and management. They define the purposes of establishing protected areas, specify the requirements of special protection regimes, outline protection and conservation measures, establish guidelines for scientific research, and define the mechanisms for state control over the protected areas.

Although the aforementioned two acts serve as the primary legal basis for the organization, operation, and protection of protected areas, they do not contain provisions regarding the preparation, submission, and adoption of protected area management plans, which are commonly practiced internationally. In fact, these legal acts do not include any provisions related to any type of plans. The only provision regarding plans development is found in the Regulations (Statute) of the Biodiversity Protection Service, which is responsible for managing protected areas. According to Point 5.4.11 of the Regulations, approved by the President of Azerbaijan through Decree No. 975, the head of the Service is responsible for the preparation of annual and long-term plans for the Service. However, it is unclear whether these plans include specific sections dedicated to individual protected areas or if they are solely focused on the Service’s operations. In addition, the Azerbaijan state law about fauna (from June 4, 1999, No. 675-IQ) needs to be taken into account, regarding the management of animals in Emerald sites and species protected under the Bern Convention in general.

The current practice is to develop yearly work plans with a list of activities, which the respective department in the Ministry of Ecology and Natural Resources approves. Cabinet of Ministers Decree

No. 447 provides the legal basis for annual work plan preparation and reports on their implementation in state institutions, specifically those falling under categories 1–5 as outlined in the Law on Civil Service. This decree approves the rule for drafting annual work plans and reports related to personnel policy and human resource management in state bodies. As stated in Article 2.1 of the rule, state bodies must develop an annual work plan that encompasses important measures for the year. This plan specifies the timeline for implementation, assigns responsibility to individuals, and outlines the expected outcomes resulting from the implementation of these measures.

Currently, Azerbaijan lacks regulations on ecological networks and corridors, which are essential to meet the requirements the Emerald Network and the respective protection of species and habitats within it.

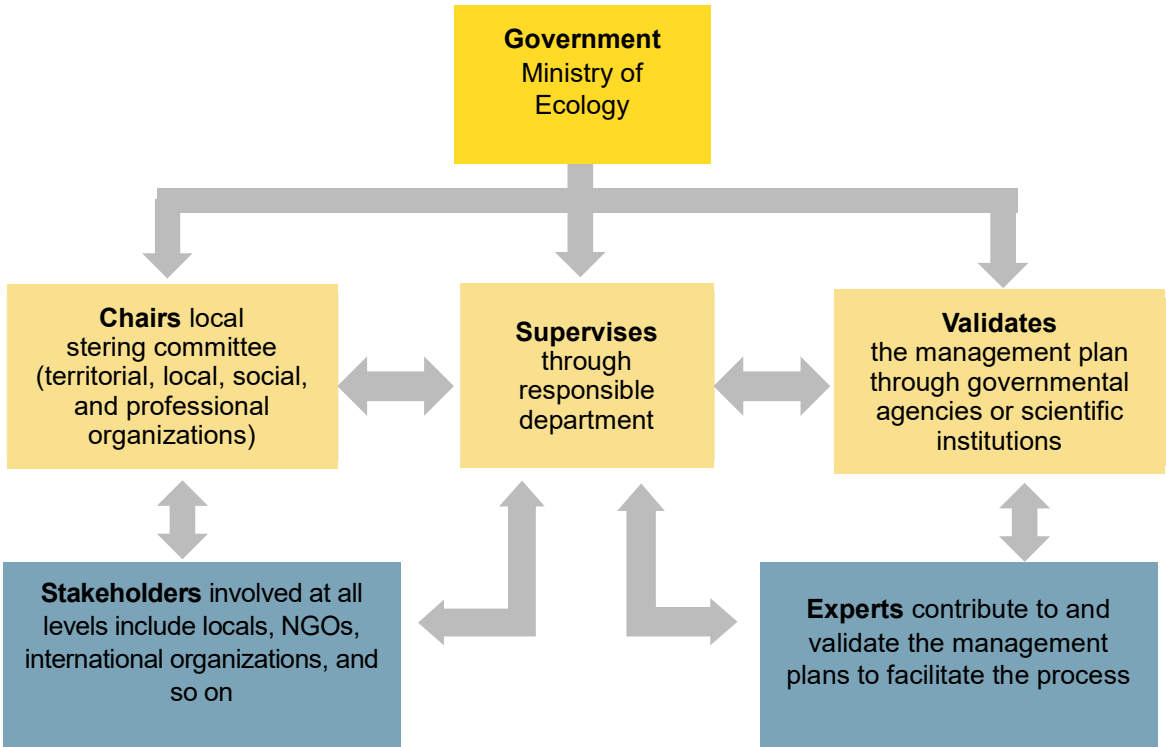
An effective institutional setup is crucial for successful site management plan development. The Ministry of Ecology plays a key role by chairing the local steering committee, which comprises representatives from territorial, local, social, and professional organizations. This committee oversees the management planning process and ensures it involves diverse stakeholders.

The responsible department within the Ministry of Ecology should supervise the management plan’s development. They should work closely with governmental agencies and scientific institutions, seeking their expertise and validation to ensure the plan meets the necessary standards.

Stakeholder engagement on all levels, including local communities, non-governmental organizations, and international organizations is a fundamental aspect of the process and their participation is encouraged and valued. Stakeholders contribute their knowledge, insights, and perspectives to the management plan and their involvement helps to validate the plan’s content and ensures it reflects the needs and aspirations of all relevant parties.

Furthermore, stakeholder engagement serves to facilitate the process itself. By actively participating, stakeholders foster collaboration, provide input on various aspects of the plan, and help build consensus among different interest groups. Their involvement contributes to the overall transparency and effectiveness of the management planning process. Figure 3 illustrates the situation for the legal framework for an ecological network.

Figure 3. Institutional setup needed to elaborate a modern site management



The Decree of the President of Azerbaijan #385, dated September 14, 2004, authorized the signing of the “Agreement on the Emerald Network pilot project between the Ministry of Ecology and Natural Resources of the Republic of Azerbaijan and the Secretariat of the Council of Europe”. This is an important step to move from a candidate list of Emerald Network sites to fully inscribed sites at some time in the future.

Azerbaijani legislation does not provide a definition of “ecological networks”. The only way to create an Emerald Network is to use Article 50 of international agreements, which states: “If the rules established in the field of specially protected natural areas and objects in the international agreements to which the Republic of Azerbaijan is a party differ from the rules stipulated in this Law, the rules of the international agreements shall be applied.” This provision is very general but could be used in case of absence of provisions on ecological networks.

In summary, the institutional setup for developing a modern site management plan should involve the Ministry of Ecology chairing the Local Steering Committee, responsible departments supervising the process, and governmental agency and scientific institution validation. Stakeholder inclusion - at all levels, including the local level (communities, administrations, businesses, etc.), the national level (ministries, agencies, businesses, etc.), NGOs on all levels, and international organizations - is integral to the planning process. Their contributions, feedback, and validation help shape the management plans and facilitate a comprehensive and inclusive approach.

It is crucial to emphasize including the ecological Emerald Network in the law on “Specially Protected Natural Areas and Objects”. In addition, provisions on site management planning should be incorporated in the primary legislation of the country, specifically in the law on protected areas mentioned above. These provisions should also address the establishment of ecological networks and corridors, recognizing their importance for effective conservation efforts.

Furthermore, it is advisable to outline the details for the development of the management plans for protected sites in the secondary legislation of the country. This approach allows for a more agile process as it does not necessitate the lengthy and challenging procedure of amending existing laws and decrees.

By formulating specific guidelines and requirements for management plan development in secondary legislation, the country can streamline the process and ensure consistency in approach. This proactive step facilitates the effective management of protected areas without the need for extensive legislative modifications.

Ecological Importance

The officially adopted candidate Emerald sites in Azerbaijan possess unique ecological features and values, showcasing diverse habitats and species. They cover about 19.4 percent of the country's terrestrial surface and already cover a significant part of habitats important to protect the species listed under the Bern Convention and in the Azerbaijani Red Book for flora and fauna. There is still the need to enlarge the Emerald Network, because its current extent and that of national protected areas are falling well behind the 30:30 goal formulated in the Target 3 of the Kunming-Montreal Global Biodiversity Framework (GBF). This is especially true for the wetland areas off the coast of Azerbaijan in the Caspian Sea. Only a fraction of this valuable habitat is currently protected.

The highlights covered by the candidate Emerald sites include:

- **Brackish wetlands.** These wetlands found in inland, and Caspian coastal areas of Azerbaijan are highly productive and serve as crucial feeding grounds for millions of migratory and wintering waterbirds.
- **Semi-desert landscapes.** The semi-desert areas of Azerbaijan boast unique plant compositions that provide food for a significant number of birds and mammals, including the goitered gazelle (*Gazella subgutturosa*) and domestic animals.
- **Relict forests and endemic species.** The Hirkan site is home to relict forests with typical species, such as the wild pistachio (*Pistacia atlantica*), juniper (*Juniperus spp.*), and wild pomegranate (*Punica granatum*). The Mingachevir-Turianchay site houses the only eldar pine (*Pinus eldarica*) forest found in the world. Coastal sites exhibit endemic water species in the Caspian Sea. Alpine and subalpine areas host species like the Caucasian leopard (*Panthera pardus saxicolor*) and Caucasian Black Grouse (*Lyrurus mlokosiewiczii*).
- **Nesting colony of Caspian Gull.** The island of Gil supports the largest nesting colony of Caspian Gull (*Larus cachinnans ridibundus*), with up to 7,000 nesting pairs.

These sites are characterized by key species and habitats:

- **Key species.** All species mentioned in resolution 6 of the Bern Convention need to be protected. For the Caucasus, endemic bird species include the Caucasian black grouse (*Lyrurus mlokosiewiczii*), Caucasian chiffchaff (*Phylloscopus lorenzii*), Caucasian snowcock (*Tetraogallus caucasicus*), and the Caspian snowcock (*Tetraogallus caspius*). Endemic plant species for the Caucasus and Hirkan region include the iron tree (*Parrotia persica*), Lankaran acacia (*Albizia julibrissin*), Zelkova (*Zelkova carpinifolia*), and Gledichia (*Gleditsia caspica*). Species of special importance for protection in Azerbaijan include the goitered gazelle (*Gazella subgutturosa*), black francolin (*Francolinus francolinus*), little bustard (*Tetrax tetrax*), and various other birds.
- **Key habitats and ecosystems.** All habitats mentioned in resolution 4 of the Bern Convention need to be protected. In Azerbaijan, the sites encompass semi-deserts, relict Hirkan forests, forest belts at different elevations, eldar pine forests (*Pinus eldarica*), dry subtopic forests of wild pistachio (*Pistacia atlantica*) and juniper (*Juniperus spp.*), alpine subalpine meadows, and mountain steppe. They also include large coastal and inland wetlands.

These habitats play crucial ecological roles:

- **Semi-deserts support a significant livestock population** and now provide arable lands for agriculture, making their natural state without agricultural use rare. The Shirvan site preserves the semi-desert ecosystem.
- **Forests in Azerbaijan face significant anthropogenic pressures**, with only 1 percent of the country's forests located on plains. Mountain forests have been impacted by grazing and human activities, but efforts are made to protect them, especially in the Hirkan National Park.
- **Wetlands face challenges due to unsustainable water supply and eutrophication** caused by intensive agricultural activities in surrounding areas, particularly in Aggol, Shirvan, and Gyzyllagach.

Overall, the Emerald sites in Azerbaijan represent important ecological processes, provide vital habitats for numerous species, and require dedicated conservation efforts to ensure their preservation.

Conservation Objectives

The management plan for protected areas should establish clear objectives that guide conservation and sustainable site use for a longer period (10 to 30 years). The scope of management objectives typically includes several key aspects, such as preserving the ecological integrity and biodiversity of the area, ensuring the protection of species, habitats, and ecosystems, emphasizing the sustainable use of natural resources, and promoting activities that are compatible with conservation goals. It also addresses the management of visitor activities that provide educational and recreational opportunities while minimizing negative impacts on the environment. Additionally, the plan may prioritize the involvement of local communities, recognizing their traditional knowledge and fostering their participation in conservation efforts. Overall, the management objectives should achieve a balance between conservation, sustainable use, and community engagement within the protected area.

The primary targets of Emerald sites are the habitats and species listed under the Bern Convention (0), but should also consider international, and regional conservation goals such as Sustainable Development Goals or Targets for 2030 under the GBF.

In addition, conservation objectives should be:

- Specific (attributed to concrete species and habitats)
- Numeric (enabling comparisons, for example, habitat or population size of species)
- Measurable (possible to monitor the status with a consistent method)

Conservation objectives are typically population size or habitat area or quality that should be preserved or restored.

As a secondary objective, it is also important to take the whole range of national programs into account. For example, the National Strategy and Plan of Action on Conservation and Sustainable Use of Biodiversity (NBSAP) is often formulated under the Convention of Biological Diversity (CBD), but the plan should also review programs not directly related to nature conservation, like the “National Priorities for Socioeconomic Development” adopted in 2021 in the frame of the Agenda 2030 for Azerbaijan for relevance.

Another important source is the Ecoregional Conservation Plan for the Caucasus, which was first written in 2006, and later revised and updated in 2012 and 2020 (Zazanashvili 2020a and 2020b). During its development, more than 200 experts and multiple governmental and non-governmental organizations worked together to create the document presenting an overview of the Ecoregion’s biodiversity and its threats, introducing the main actors in the field of biodiversity conservation in the Caucasus and presenting a plan with its targets and actions.

Zoning

The zoning of Emerald sites involves the classification and division of the sites into different zones or areas based on their specific characteristics and management needs. The purpose of zoning is to ensure effective site management and conservation while considering its ecological, cultural, and recreational values.

The Law of the Republic of Azerbaijan “on Specially Protected Natural Areas and Objects” Article 2.3, implies the division into zones in national parks. According to this article separate special protection regimes apply in national park territories, that consider their natural, historical-cultural, and other characteristics, and define the following activity zones:

- Zones where the legal regime of special protection applies (core zone)
- Tourism and recreation zones (transition zone)
- Tourism and other services zones (transition zone)
- Zones where the regulatory regime of economic activity applies (sustainable use zone)
- Farm-production zones to ensure the activity of the national park (sustainable use zone).

Tourism and recreation zones permit specific types of nature use, such as hunting, sports fishing, and other activities related to aquatic bioresources for the purpose of tourism and recreation. National parks, on the other hand, facilitate scientific research, cultural-educational programs, and educational events following established guidelines and procedures. These activities contribute to a comprehensive understanding of the natural environment and promote educational opportunities for visitors within the national parks.

Since 2014, the Law of the Republic of Azerbaijan “on Specially Protected Natural Areas and Objects” has been amended, allowing so-called “Sanitary Protection Zones”. These zones act as buffer zones for the existing protected areas and can be up to three kilometers wide. The buffer zone’s main purpose is to mitigate negative impact to the protected area itself. Five protected areas have such a buffer zone (Aghgol, Goygol, and Altiaghaj National Parks, and the Korchay and Eldar Shami Nature Reserves). In addition, preliminary approval, and mapping of nine other buffer zones are under way (Shirvan, Hirkan, and Samur-Yalama National Parks, and Shirvan, Turyanchay, Garayazi, Zaqatala, and Ilisu Nature Reserves).

This functional zoning for protected areas may serve as a basis for the zoning of Emerald sites. Typically, Emerald sites are divided into several zones, each with its own set of management objectives and regulations. These zones include core zones, buffer zones, transition zones, and sustainable use zones. The core zones are usually the most strictly protected areas where conservation of biodiversity and natural processes is the primary focus. Buffer zones surround the core zones and provide a protective barrier against external threats while allowing for some sustainable uses and compatible activities. In this sense the above described “sanitary zones” are not buffer zones in the strict sense, as they are around the whole protected areas and not only buffering negative impacts from the core zones.

Protected areas in Azerbaijan cover about 10.3 percent of the country’s territory. Based on the classification of protected areas by the six categories defined by the IUCN, the protected areas of Azerbaijan belong to 1st (strict nature reserve), 2nd (national parks) and 4th (habitat and species management area) categories. According to the number of protected areas, 24 percent of them are strict nature reserves, 22 percent are national parks and 54 percent are habitat and species management areas. A need exists to establish more protected areas and enlarge the Emerald Network, with a focus on ecological corridors between the existing sites. Some suggestions are given in Ismayilov et al. 2019. The 30:30 Target of the CBD should be taken as an orientation for the final size of the Emerald Network as mentioned above.

Threat Assessment

Since the Emerald sites of Azerbaijan are located in very different physical and geographical conditions, the list of factors that threaten their existence is quite long. While threats can affect protected areas to different degrees some may affect all protected areas in the same way. Site management plans should assess specific threats and formulate measures to mitigate them wherever possible.

The following list of main threat groups can be used as a guidance what aspects need to be taken into account. It is by no means complete and threats need to be identified on a site level:

- **Habitat loss.** Deforestation is one of the factors that poses danger to the mountain regions of Azerbaijan. The removal of forests makes slopes more vulnerable to erosion and increase turbidity in water, adversely changing water quality. This factor is more pronounced in forested areas and areas where agricultural areas are expanding (Karayazi, Arpachay, etc.).
- **Climate change.** Azerbaijan experiences various climatic hazards, including heat waves, storms, extreme temperatures, heavy rains, droughts, floods, hails, and landslides. However, it's important to note that these hazards can vary both in terms of timing and geographical distribution. In the flat regions of the country, droughts are a common concern, while mountainous areas are more susceptible to landslides and flash floods. The specific nature and intensity of these hazards may differ depending on the location, highlighting the need for site-specific risk assessments and adaptation strategies to mitigate their impacts.
- **Pollution.** Azerbaijan is one of the most polluted countries in the European and Central Asian region. Oil pollution in Absheron peninsula reaches dramatic levels which may directly affect the sites located close to the Caspian Sea (e.g. Gyzyllagach, Shirvan, Samur-Yalama, and the Kura Delta). Pollution with pesticides and nutrients in rural areas is very high, which may affect Aggol, the Kura Delta, Gil Island and Karayazi.
- **Invasive species.** Invasive species can mainly affect the lowlands along the Caspian Sea and the areas close to it (The Kura Delta, Gyzyllagach, Shirvan, Samur-Yalama, and Gil Island sites). Alpine habitats are currently less affected, but progressing climate change is likely to change that in the future.
- **Poaching and illegal use of species.** Poaching and illegal use poses significant threats for certain species. Waterfowl, for instance, can be hunted sustainably, but setting up and controlling quotas is a challenge. Also wolves and bears are killed by herders, as they pose a threat to their livestock, even though the species are protected under the Bern Convention.

There are broad range of documents, strategies and actions for preventing, mitigating, and managing threats (NBSAP, Red Book of Azerbaijan, State of Environment Reports, CBD national reports, species action plans, protected areas management plans, etc.). The general purpose of these documents is to ensure conservation, including the enhancement and sustainable use of biological diversity in Azerbaijan as much as possible, and to contribute to the protection of species and habitats.

Biodiversity Conservation

Conservation measures for protecting and restoring biodiversity within Emerald sites

After recently assessing designated Emerald sites, Gyzylagach has been designated as a National Park, along with Absheron, Shirvan, Goygol, a significant part of Shahdag, Hirkan, Samur-Yalama, and a large portion of Zangezur-Agridag (with 42,797 hectares as Zangezur National Park). Karayazi, Turianchay (part of Mingachevir-Turianchay), Ellar Oyugu (part of Mingachevir-Turianchay), Zaqatala, and Ilisu (parts of Zaqatala-Illisu) have the status of State Strict Reserves, while Zuvand and Gil Island are State Nature Sanctuaries. However, the Kura Delta currently lacks specific protection status. Gobustan is designated as a State History-Art Reserve under the management of the Ministry of Culture, with economic activities prohibited. National Parks allow limited tourism, while Strict Reserves only permit scientific research and authorized journalism. State Nature Sanctuaries allow economic activities but prohibit direct use of the protected areas allowing for the restoration of damaged habitats over time.

Guidance for managing key habitats, endangered species, and ecological processes

The Emerald Network, established under the Bern Convention, aims to protect Europe's most valuable and threatened species and habitats within a certain area, maintain these habitats and species, and if necessary, proactively restore them. In Azerbaijan, designated candidate Emerald sites encompass already exceptional biodiversity and ecological importance. The management of key habitats, endangered species, and ecological processes is of utmost importance in the conservation efforts of Emerald sites in Azerbaijan. These sites are recognized for their exceptional biodiversity and ecological significance and require effective management strategies.

Key habitats

The management plan focuses on identifying and safeguarding endangered natural habitat types within the Emerald sites (listed in revised annex of Resolution 4 [1996], see also 0). These habitats provide essential resources for biodiversity and support unique ecosystems. The management plan should include measures for habitat identification, monitoring, and protection with an emphasis on maintaining habitat connectivity and promoting the long-term viability of these key habitats. A unique challenge is the lack of a countrywide habitat map that uses EUNIS nomenclature or contains Azerbaijan's Red Book (2023) listed species (Box 1).

Box 1. Habitats need to be mapped countrywide and checked on for Azerbaijan specific species

Iris species are important, vulnerable plants in Azerbaijan. The Red Book of Azerbaijan (2023) lists 16 species, which the Bern Convention does not. *Iris acutiloba* grows in Azerbaijan's widespread protected habitat "Continental inland salt steppes (E6.2)" in the Gobustan semi-deserts and the habitat complex of "Coastal dunes and sandy shores (B1)" along the Caspian Sea shoreline. Thus, the management planning process must not only investigate the species, but also the habitats present and identify Azerbaijan-specific species compositions. Even relatively widespread habitats like the abovementioned "Continental inland salt steppes" require protection. A significant data deficit is evident in many areas due to the lack of a systematic countrywide mapping of habitats taking the Bern Convention classification (EUNIS) into account.

Ecological processes: The management plan recognizes the significance of maintaining vital ecological processes in the Emerald Network such as nutrient cycling, water regulation, and pollination, that are essential for ecosystem functioning and resilience. The plan integrates measures to preserve and restore these processes, including reducing fragmentation, promoting natural disturbances, and enhancing ecosystem resilience. By prioritizing the integrity of ecological processes, the management plan ensures the overall health and sustainability of the sites' ecosystems.

Endangered species

The management plans give special attention to the conservation of all protected species under Resolution 6 found within the Emerald sites (see 0) and incorporates targeted measures to protect and enhance the populations of these species. It includes habitat management strategies, species monitoring protocols, and public awareness initiatives. The aim is to promote the recovery and sustainable coexistence of endangered species within the sites. The challenge in this case is that the Bern Convention lists species which are not in the Red Book of Azerbaijan (2003) but must be protected under the convention anyway (see Box 2).

Box 2. Example of management implications in the case of large carnivores - Brown Bear and Grey Wolf

The Bern Convention lists both the brown bear and grey wolf as needing protection. However, both are still widespread in Azerbaijan—even though there are indications that numbers are declining due to poaching—and the IUCN (2023) lists the species as LC (least concern). Similarly, Azerbaijan's Red Book (2023) does not list the two species, basically underlining that the species are under no immediate threat and there is no need for action in Azerbaijan. But, when taking the Bern Convention listing into account, it is necessary to protect the species and develop management strategies. Human-wildlife conflicts are imminent for these two species and represent a clear need for management measures, such as implementing compensation mechanisms for taken livestock or plundered beehives. Dedicated species action plans are often the way forward for large carnivores, as they have home ranges larger than Emerald sites and protected areas. The successful recovery of the leopard protection in Azerbaijan (Breitmoser et al. 2014) is an example of such an action plan.

Monitoring and adaptive management: Ongoing monitoring and evaluation are integral components of the management approach. Regular assessments track the progress and effectiveness of management efforts. Adaptive management principles allow for adjustments and improvements based on scientific knowledge and changing environmental conditions.

By implementing the following strategies for key habitats, endangered species, and ecological processes, Azerbaijan's Emerald sites can be effectively conserved and managed. The following strategies promote connectivity and genetic diversity across Emerald sites and surrounding landscapes:

- **Strategy 1:** Establish corridors between protected areas to facilitate the exchange of fauna and possibly flora, under controlled conditions and without hindrances. This allows connections between different parts of Specially Protected Areas (SPAs) and even with unprotected areas.
- **Strategy 2:** Support the WWF's approach of providing financial incentives to local communities for protecting released animals, such as bison, goitered gazelle, and leopards. This recognizes that nature conservation requires financial investment.
- **Strategy 3:** Conduct public awareness and ecological education campaigns among local communities to ensure the security and protection of endangered species.
- **Strategy 4:** Advocate for legislative reforms to address the shadow economy, including illegal hunting, fishing, and forest cutting. Also, adapt legislation on management planning for protected area needs.

Overall, the measures must consider the protected species and habitat by taking a European perspective without neglecting species in Azerbaijan's Red Book.

Sustainable Use and Development

The Emerald sites encompass a wide range of ecosystem services that play a crucial role in sustaining the culture, customs, and traditions of local communities. These services include the provision of essential natural products, protection from natural hazards, and the creation of spiritual and cultural values through the area's natural beauty. Mountain areas, in particular, offer ecosystem services such as water resources, food sources, recreational and tourism opportunities, and a myriad of other benefits associated with nature. These services contribute significantly to the wellbeing and livelihoods of the communities residing in these areas.

The main principles of sustainably using and developing Emerald sites in Azerbaijan include:

- **Foster community engagement:** Acknowledging that community members have a credible stake in the management of their natural resources encourages their active participation in decision-making processes, planning, and management of the Emerald sites. It empowers them to contribute their expertise, traditional ecological knowledge, and perspectives to shape the reserve's activities. Including the recognition of community members of community members, as in the biosphere reserve in Zaqatala, can create a more holistic approach to conservation and sustainable development, respecting and valuing the unique cultural heritage of the local community while fostering their active involvement in the reserve's activities.
- **Promote sustainable livelihoods:** A key focus of Emerald sites is promoting sustainable livelihoods that contribute to the preservation of wild species and habitats. This entails encouraging activities such as agro-ecotourism, preserving traditional crafts, and the sustainable utilization of natural resources, including non-timber forest products and wildlife. By engaging in these practices, communities can not only generate income but also contribute to the overall wellbeing of their members, all while maintaining a harmonious balance with nature conservation objectives.
- **Enhance sense of belonging and pride:** Recognizing the community's identity within the biosphere reserve can foster a sense of belonging and pride among members. It strengthens their connection to the land, reinforces cultural values, and instills a sense of responsibility for the conservation and sustainable use of natural resources.
- **Promote cultural exchange and learning:** The biosphere reserve can serve as a platform for cultural exchange between the local community and visitors. This exchange can lead to a better understanding and appreciation of diverse cultures, promoting tolerance, respect, and learning.

In conclusion, the Emerald sites in Azerbaijan are invaluable reservoirs of ecosystem services vital for the preservation and continuation of the culture, customs, and traditions of local communities. These sites provide a multitude of benefits, including essential natural resources, protection against natural hazards, and the inspiration and enrichment of spiritual and cultural values through their breathtaking natural beauty. The mountain areas within these sites are especially important, as they offer a diverse range of benefits including water resources, valuable food sources, and opportunities for recreation and tourism.

It goes without saying that recreation and tourism needs to be organized sustainably, as these services not only contribute to the wellbeing and livelihoods of the communities living in these areas but also serve as a foundation for sustainable development and the conservation of natural heritage. Recognizing and safeguarding these ecosystems is essential for the long-term prosperity and harmony between human societies and the natural environment in Azerbaijan's Emerald sites.

Research and Monitoring

Protected areas must have a comprehensive biodiversity and habitat monitoring program to assess the effectiveness of conservation measures outlined in the site management plan. The monitoring program should objectively measure whether species populations remain in the desired condition and habitats are maintained, or recovering and expanding, if possible and desired. The focus is on the species listed in Resolution No. 4 (1996) for habitats and Resolution No. 6 (1998) for species of the Bern Convention. Conduct data collection using standardized, repeatable methods, including animal and plant counts, species identification, and density estimation. Employ different approaches for various ecological groups of birds, as described in Section 8. For example, transect counts work well for reptiles and amphibians, while methods such as footprints, direct counts, and aerial surveys are useful for mammals, depending on their ecological and taxonomic groups. Also, camera traps play an increasingly important role in wildlife tracking (see Dieterich 2018a, b, and c).

The analysis of collected data compares information from year to year and season to season, identifying major trends in species numbers and their proportions within the overall animal population of the area. Extrapolation methodologies can estimate population sizes across larger areas while considering variations in density across different regions. The analysis will also identify dominant and rare species, as well as track changes in their densities, numbers, and proportions and should record weather conditions alongside the survey data, as weather plays a significant role in the analysis.

Reporting is the final stage of the analysis. It provides a summary of the main trends and offers predictions for future species composition and dynamics based on the collected data.

There are some examples on how to conduct such monitoring activities in the Caucasus region (Dieterich 2018a, b and c). Additionally, specialized training programs for the staff on a regular basis will ensure the necessary expertise and skills for successful monitoring program implementation.

The lack of scientific staff in many protected areas in Azerbaijan, combined with a reduction in scientific positions upon retirement, has resulted in the absence of key roles such as vice-director for science and scientific workers. In the past, some special protected areas had up to seven scientific staff members, but currently, the responsibility for nature protection falls mainly on protection staff such as rangers and inspectors. However, without a scientific approach, their efforts may not be as effective.

In response to the lack of specialized staff, the Azerbaijan Ornithological Society (AOS) has collaborated with the Ministry of Ecology and Natural Resources of Azerbaijan Republic (MENR) to implement a comprehensive counting program for threatened and significant bird species in the special protected areas of Azerbaijan. The AOS organizes and executes the program, which spans a five-year period with the support of MENR. The program focused on Shirvan and Gyzyllagach National Parks in 2023 and included the following types of counts:

- Birds in mixed nesting colonies of herons, ibises, and cormorants
- Acoustic counts by identifying bird vocalizations along transect lines specifically targeting species like the black francolin, purple gallinule, and snowcock
- Predator bird populations through nest findings and regular monitoring
- Caucasian black grouse on lek-sites within the subalpine belt
- Assessing abundant forest bird species based on vocalizations.
- Winter counts of visible waterbirds, including little bustard and associated species such as rooks, starlings, peregrine falcons, and white-tailed sea eagles.

Simultaneously, training programs are being conducted for local staff in each protected area, empowering them to carry out bird counts independently. Each trained staff member receives a “Field Guide of the Birds of Azerbaijan”, a comprehensive resource in Azerbaijani covering approximately 200 bird species found in Azerbaijan, published by the AOS as the sole field guide available in the country. Furthermore, starting from 2022, a collaboration between representatives from the WWF and protected area workers conducted regular counts of the main mammal species in protected areas.

Education and Awareness

Awareness about the importance and values of Emerald sites is crucial for their conservation and sustainable management. To achieve this, employ several awareness strategies, such as:

- **Education programs:** Implement education programs targeted at local communities, visitors, and stakeholders. These programs can include workshops, training sessions, and interactive activities that provide information about the ecological significance, unique features, and benefits of Emerald sites. By fostering a sense of connection and understanding, local communities and visitors can become advocates for conservation.
- **Collaboration with educational institutions:** Partnering with educational institutions such as schools, colleges, and universities is an effective way to reach a wider audience. This collaboration can involve developing curriculum materials, organizing field trips, and engaging students in research or conservation projects related to the Emerald sites. By incorporating knowledge about these sites into formal education, the importance of their protection can be instilled in future generations. Some of these measures have already been taken in selected protected areas in Azerbaijan and can be upscaled. For example, since 2017, educational ecotours have been organized for high school students from different districts of Baku to Shirvan National Park and to Shahdag National Park in October 2018. The students were informed in detail about the biodiversity of the national park, the lifestyle and importance of animals. In addition, new modular environmental education programs were developed with the active participation of staff of the newly established Child and Youth Development Center under the Ministry of Education of Azerbaijan.
- **Media engagement:** Collaborating with media outlets, including television, radio, newspapers, and online platforms, is crucial for reaching a broader audience. Share information about Emerald sites through interviews, documentaries, articles, and social media campaigns, creating awareness and generating interest in their conservation. Also use public service announcements and advertisements to highlight the values and significance of these sites.
- **Partnerships with NGOs:** Collaborating with relevant non-governmental organizations specializing in nature conservation and education can greatly enhance awareness efforts. NGOs can assist in organizing community events, workshops, and awareness campaigns specific to the Emerald sites. They can also provide expertise in developing educational materials and implementing targeted conservation programs.
- **Interpretive signage and visitor centers:** Interpretive signage at key locations within the Emerald sites and visitor centers can help inform visitors about the ecological importance, unique features, and conservation efforts taking place in these areas. These visual aids and interactive displays can enhance visitors' understanding and appreciation of the sites, promoting responsible behavior and respect for the environment.

By implementing these strategies, the Emerald sites can effectively raise awareness among local communities, visitors, and stakeholders about their significance, fostering a collective commitment towards their protection and sustainable management.

Stakeholder Engagement

Stakeholder involvement is crucial in managing Emerald sites in Azerbaijan. Identify key stakeholders and understand their roles in site management for effective decision-making and successful conservation efforts. Implement mechanisms for stakeholder engagement, participation, and consultation to ensure that the perspectives and interests of various groups are considered.

Emphasize collaboration with local communities, indigenous groups, and other stakeholders to foster a participatory approach in decision-making processes. This collaboration allows for the exchange of knowledge, expertise, and experiences, creating a sense of ownership and shared responsibility for the conservation and sustainable use of the Emerald sites.

The Ministry of Ecology and Natural Resources (MENR) plays a pivotal role in coordinating stakeholder engagement activities. Other key ministries, such as the Ministry of Agriculture, the Agency of Tourism, the Ministry of Industry, Ministry of Economics, and the Ministry of Finance, also contribute to biodiversity conservation and sustainable development through their respective areas of expertise.

The Ministry of Science and Education of Azerbaijan, the Azerbaijan National Academy of Sciences (ANAS), and the International Commission on Aquatic Resources of the Caspian Sea (ICARCS) provide scientific expertise, research, and coordination in the conservation and sustainable use of natural resources.

The Public Council under the Ministry of Ecology and Natural Resources of the Republic of Azerbaijan ensures public participation in decision-making processes related to the rational use and protection of natural resources. This council contains representatives from non-governmental organizations actively working in the field and implementing public projects.

Cooperation between government agencies and organizations, including the Republican Center for Child and Youth Development, fosters collaboration in environmental education, awareness campaigns, and improvement of ecological practices.

The KfW-financed and WWF-implemented program “Eco-Corridors Fund for the Caucasus (ECF)” supports biodiversity conservation through connectivity and landscape management, involving local communities and traditional lifestyles in maintaining healthy ecosystems.

The continuous efforts to conserve leopards in the Caucasus, public awareness campaigns, and measures to protect leopard habitats demonstrate the commitment of the Ministry of Ecology and Natural Resources, along with the support of IDEA Public Union and the WWF.

Developing national ecotourism standards, management plans, and marketing strategies contributes to sustainable tourism development in designated areas, benefiting both conservation efforts and the local economy.

These various initiatives and collaborations reflect the commitment of Azerbaijan to engage stakeholders, promote sustainable practices, and protect the unique biodiversity found within Emerald sites.

Capacity Building and Training

Capacity building and training are crucial components of effective Emerald site management. The following overview highlights capacity building initiatives and training programs in Azerbaijan, incorporating examples from the country:

- **Assessment of capacity building needs:** An assessment was conducted to identify the capacity building needs for Emerald site management in Azerbaijan. This assessment aimed to determine the skills and knowledge gaps among site managers, staff, and stakeholders to tailor training programs accordingly.
- **Training programs:** Training programs were implemented to enhance the skills and knowledge of site managers, staff, and stakeholders. These programs covered various aspects of site management, conservation practices, and sustainable development. Examples include GIS training on forestry monitoring, trainings on integrating ecosystem services into development planning, and erosion risk assessment using GIS and remote sensing technology.
- **Exchange of experiences and best practices:** Azerbaijan actively participated in regional workshops and conferences to exchange experiences and best practices with other Emerald site managers. For instance, a regional workshop was held to discuss activities under the ECF program, while a regional conference focused on developing transboundary eco-tourism products and sharing expertise within the country.
- **Bilateral cooperation and study tours:** Collaboration between the Ministry of Ecology and Natural Resources and organizations like the WWF facilitated projects such as the conservation of leopards in the Caucasus. Workshops, study tours, and the development of business plans were conducted within this framework. Study tours to national parks in Germany, Italy, and Slovenia provided valuable insights for improving ecotourism practices.
- **Regulations and awareness campaigns:** Three regulations were prepared to support the implementation of the “Law on Fauna”. Awareness campaigns were conducted, and training on forestry monitoring and GIS was organized with the support of international experts.

Through these capacity building initiatives, training programs, knowledge exchanges, and collaborative efforts, Azerbaijan has made strides in enhancing the skills and expertise of site managers, staff, and stakeholders involved in Emerald site management.

Financing and Resources

The state budget of the Republic of Azerbaijan is the main source for implementing measures aimed at protecting the environment and biodiversity in the country. It allocates up to 300 million manats (US\$176 million, as of August 2023) from the state budget every year to support the following areas:

- Biodiversity conservation
- Forest protection fund of Azerbaijan
- Specially protected area management.

Biodiversity conservation measures and monitoring as well as management planning are currently underfunded. There are also disproportionately more rangers and inspectors hired than expert personnel for biodiversity, science, tourism and education.

Therefore activities for nature protection are largely financed by donors (KfW, ADB, UNDP, GEF, GIZ, USAID, EU4Environment, and others), but some activities related to biodiversity have ended in 2019 and the active programs now generally involve climate change, agro-biodiversity, and overall environmental concerns. Some of the donors' initiatives are supporting activities on a transboundary or regional level, such as the South Caucasus Ecoregion.

Investments in biodiversity conservation from the business sector are relatively rare, but examples exist. For instance, the State Oil Company of Azerbaijan Republic funds conservation activities along the Trans-Anatolian Natural Gas Pipeline through special grant programs.

The Biodiversity Finance Initiative, a global partnership launched by UNDP and the European Commission, supports countries to enhance their financial management of biodiversity and ecosystems.

Protected areas should not engage in economic activities beyond charging entrance fees and at visitor centers, with the government providing the majority of funding. However, in instances of budget constraints, protected areas should invest in fundraising, mostly through the Ministry of Environment but also on an individual site level.

Reporting and Evaluation

The Bern Convention outlines several different reporting types. Only one of them is compulsory under the terms of the convention, namely the system of the “biennial reports”, which all Parties making exceptions to the provisions of the Convention - in compliance with the strict terms and conditions spelt out in Article 9 - must submit to the Secretariat every two years. These reports must contain a scientific assessment of the impact of such exceptions to the general obligation to protect the species and habitats covered by the Convention. The biennial reports are presented each year to the Standing Committee for examination. The reporting system is available online.¹

In addition, parties are invited to submit general reports on the national implementation of the Convention every four years, on a voluntary basis. The Groups of Experts set under the Convention also monitor the implementation of both the Treaty and the Recommendations adopted by the Standing Committee. These concern the conservation status of species or habitats, or specific conservation challenges. Finally, the Standing Committee may review the implementation of the Convention in a contracting party by analyzing legal and policy reports prepared by independent experts.

The reports heavily depend on the monitoring systems in place at different Emerald sites as described in section 0. Meaningful report development and delivery to the Bern Convention Secretariat relies on field data on the state of species and habitats.

Additionally, Resolution No. 8 (2012) provides a reporting procedure where each Party to the Convention shall submit a report to the Standing Committee every six years on the Conservation Status of habitats of Resolution No. 4 (1996) and species of Resolution No. 6 (1998), in accordance with the reporting format established by the Standing Committee.

The reporting procedure under Resolution No. 8 (2012) ensures that the Parties to the Bern Convention are regularly monitoring the status of wild flora and fauna and habitats in their territories and taking the necessary measures to conserve them. The reports submitted by the Parties provide valuable information on the conservation status of these species and habitats and help to identify the main threats they face. This information is used by the Standing Committee to develop recommendations for the Parties on how to improve the conservation of wild flora and fauna and their habitats.

The reporting procedure is also important for raising awareness of the Convention and its objectives among the public and decision-makers. By making the Parties' conservation efforts transparent, the reporting procedure helps to ensure that the Convention is implemented effectively.

The next reporting cycle under Resolution No. 8 (2012) covers the period from 2019 to 2024. The reports for this cycle are due to be submitted to the Standing Committee most likely by 2026.

The Standard Data Form of the Emerald database requires detailed information on designated Emerald sites, including their ecological significance and characteristics. This form captures specific data on the habitats and species present within these sites to monitor their conservation status. Given its significance, the form serves as a primary reporting tool and must be updated regularly to reflect current conditions and conservation efforts on species, habitats, and other related topics within the Emerald Network.

There is also a case-file system in place, dating back to 1984, which is a unique monitoring tool based on complaints for possible breaches of the Convention that can be submitted by NGOs or even private citizens.² The Secretariat, Bureau and, when particularly relevant, the Standing Committee, process the received complaints according to their merits and information submitted. When the Standing Committee or its Bureau requires further information, they can arrange for on-the-spot visits by independent experts who report to the Standing Committee.

¹ Council of Europe Convention on the Conservation of European Wildlife and Natural Habitats. Reporting. Available at: <https://www.coe.int/en/web/bern-convention/reporting>

² Council of Europe Convention on the Conservation of European Wildlife and Natural Habitats. Case Files. Available at: <https://www.coe.int/en/web/bern-convention/case-files>

The case-file system is also unusual as it is not based on any provisions within the Convention but stems from decisions taken by the Standing Committee itself and has proven to be a very successful problem-solving instrument.

Neophron percnopterus



Tetrao mlokosiewiczi



Tetrax tetrax



Aythya nyroca

**Endangered bird
species of Azerbaijan**

Pinus eldarica



Iris caucasica



Polystichum woronowii



Astragalus Bakuensis

Endangered plants species in Azerbaijan

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Annexes

Annex A: List of candidate Emerald sites in Azerbaijan as of 2017

Table 2. Emerald sites in Azerbaijan

Site Code	Site Name	Site Area (Ha)	Birds	Species	Habitats	Features total	BIOGEO
AZ0000001	Zangezur-Agridag	179,050	40	13	4	57	ANA
AZ0000002	Mingecaur-Turyanchay	326,259	79	21	4	104	ALP, STE
AZ0000003	Zakataly-Ilisy	138,801	36	15	3	54	ALP
AZ0000004	Shahdag	352,433	38	25	3	66	ALP, STE
AZ0000005	Hirkan	206,000	40	24	3	67	STE
AZ0000006	Zuvand	29,000	41	7	2	50	STE
AZ0000007	Shirvan	59,778	94	15	2	111	STE
AZ0000008	Aggol	98,718	83	14	2	99	STE
AZ0000009	Gyzylagach	130,385	90	13	2	105	STE
AZ0000010	Samur Yalama	18,905	18	17	3	38	STE
AZ0000011	Absheron	4,919	19	7	2	28	STE
AZ0000012	Qobustan	29,358	19	10	1	30	STE
AZ0000013	Kura River Delta	8,383	87	12	3	102	STE
AZ0000014	Gil island	4,522	92	8	3	103	STE
AZ0000015	Goy gol lake	17,488	32	14	3	49	ANA
AZ0000016	Karayazi	5,534	80	15	3	98	ALP, STE
AZ0000017	Arpachay	70,000	37	17	4	58	ANA
Total		1,679,533					

Notes: ANA = Anatolia, ALP = Alpine, STE = Steppic.

Annex B: Excerpt from the reference list of animals, plants and habitats as a result of the biogeographical evaluation seminars November 2018 (Tbilisi) and for birds October 2019 (Budapest)³.

Table 2. Excerpt of reference list of animals, plants, and habitats

Feature group	Feature code	Feature name	AZ-ALP (Alpine)	AZ-ANA (Anatolia)	AZ-AZ (General)	AZ-STE (Steppic)	IUCN Status (EU)	Red Book AZ Status
			Biogeographical regions					
A	1171	<i>Triturus karelinii</i>	X			X	LC	VU
B	A007	<i>Podiceps auritus</i>			X		NT	Not listed
B	A019	<i>Pelecanus onocrotalus</i>			X		LC	EN
B	A020	<i>Pelecanus crispus</i>			X		LC	VU
B	A021	<i>Botaurus stellaris</i>			SR		LC	Not listed
B	A022	<i>Ixobrychus minutus</i>			X		LC	Not listed
B	A023	<i>Nycticorax nycticorax</i>			X		LC	Not listed
B	A024	<i>Ardeola ralloides</i>			X		LC	Not listed
B	A026	<i>Egretta garzetta</i>			X		LC	Not listed
B	A027	<i>Casmerodius albus</i>			X		LC	Not listed
B	A029	<i>Ardea purpurea</i>			X		LC	Not listed
B	A030	<i>Ciconia nigra</i>			X		LC	EN
B	A031	<i>Ciconia ciconia</i>			X		LC	Not listed
B	A032	<i>Plegadis falcinellus</i>			X		LC	Not listed
B	A034	<i>Platalea leucorodia</i>			X		LC	VU
B	A035	<i>Phoenicopterus ruber</i>			X		LC	VU/NT
B	A037	<i>Cygnus bewickii</i>			X		LC	VU
B	A038	<i>Cygnus cygnus</i>			X		LC	Not listed
B	A042	<i>Anser erythropus</i>			X		VU	VU
B	A057	<i>Marmaronetta angustirostris</i>			X		VU	Not listed
B	A060	<i>Aythya nyroca</i>			X		LC	VU
B	A068	<i>Mergus albellus</i>			X		VU	Not listed
B	A071	<i>Oxyura leucocephala</i>			X		VU	VU
B	A072	<i>Pernis apivorus</i>			X		LC	CR
B	A073	<i>Milvus migrans</i>			X		LC	VU/CR

³ Source: Bern Convention 2012–2022. Based on Annex 4 (habitats) and 6 (species) of the Bern Convention.

B	A075	Haliaeetus albicilla			X		LC	CR
B	A076	Gypaetus barbatus			X		NT	EN
B	A077	Neophron percnopterus			X		VU	EN
B	A078	Gyps fulvus			X		LC	Not listed
B	A079	Aegypius monachus			X		LC	EN
B	A080	Circaetus gallicus			X		LC	EN
B	A081	Circus aeruginosus			X		LC	Not listed
B	A082	Circus cyaneus			SR		LC	Not listed
B	A083	Circus macrourus			X		LC	VU
B	A084	Circus pygargus			X		LC	Not listed
B	A089	Aquila pomarina			X		LC	Not listed
B	A090	Aquila clanga			X		LC	Not listed
B	A091	Aquila chrysaetos			X		LC	VU
B	A092	Hieraaetus pennatus			X		LC	Not listed
B	A094	Pandion haliaetus			X		LC	EN
B	A095	Falco naumanni			X		LC	Not listed
B	A097	Falco vespertinus			X		VU	CR
B	A098	Falco columbarius			X		VU	Not listed
B	A101	Falco biarmicus			X		LC	CR
B	A103	Falco peregrinus			X		LC	EN
B	A119	Porzana porzana			X		LC	Not listed
B	A120	Porzana parva			X		LC	Not listed
B	A121	Porzana pusilla			X		LC	Not listed
B	A122	Crex crex			X		LC	Not listed
B	A124	Porphyrio porphyrio			X		LC	VU
B	A127	Grus grus			X		LC	NT/CR
B	A128	Tetrax tetrax			X		VU	NT
B	A129	Otis tarda			X		LC	CR
B	A131	Himantopus himantopus			X		LC	Not listed
B	A132	Recurvirostra avosetta			X		LC	Not listed
B	A133	Burhinus oedicnemus			X		LC	Not listed
B	A135	Glareola pratincola			X		LC	Not listed
B	A138	Charadrius alexandrinus			X		LC	Not listed
B	A139	Charadrius morinellus			X		LC	Not listed
B	A140	Pluvialis apricaria			X		LC	Not listed
B	A151	Philomachus pugnax			X		NT	Not listed

B	A154	Gallinago media			X		LC	Not listed
B	A157	Limosa lapponica			X		LC	Not listed
B	A166	Tringa glareola			X		LC	Not listed
B	A167	Xenus cinereus			X		LC	Not listed
B	A170	Phalaropus lobatus			X		LC	Not listed
B	A176	Larus melanocephalus			X		LC	VU
B	A177	Larus minutus			X		LC	Not listed
B	A180	Larus genei			X		VU	Not listed
B	A189	Gelochelidon nilotica			X		LC	Not listed
B	A190	Sterna caspia			SR		LC	Not listed
B	A191	Sterna sandvicensis			X		LC	Not listed
B	A193	Sterna hirundo			X		LC	Not listed
B	A195	Sterna albifrons			X		LC	Not listed
B	A196	Chlidonias hybridus			X		LC	Not listed
B	A197	Chlidonias niger			X		LC	Not listed
B	A198	Chlidonias leucopterus			X		LC	Not listed
B	A215	Bubo bubo			X		LC	Not listed
B	A222	Asio flammeus			X		LC	Not listed
B	A224	Caprimulgus europaeus			X		LC	Not listed
B	A229	Alcedo atthis			X		LC	Not listed
B	A231	Coracias garrulus			X		LC	Not listed
B	A236	Dryocopus martius			X		LC	Not listed
B	A238	Dendrocopos medius			X		LC	Not listed
B	A239	Dendrocopos leucotos			SR		LC	Not listed
B	A242	Melanocorypha calandra			X		LC	Not listed
B	A243	Calandrella brachydactyla			X		LC	Not listed
B	A246	Lullula arborea			X		LC	Not listed
B	A255	Anthus campestris			X		LC	Not listed
B	A272	Luscinia svecica			X		LC	Not listed
B	A293	Acrocephalus melanopogon			SR		LC	Not listed
B	A307	Sylvia nisoria			X		LC	Not listed
B	A320	Ficedula parva			X		LC	Not listed
B	A321	Ficedula albicollis			X		LC	Not listed
B	A338	Lanius collurio			X		LC	Not listed
B	A339	Lanius minor			X		LC	Not listed

B	A346	Pyrrhonorax pyrrhonorax			X		LC	Not listed
B	A379	Emberiza hortulana			X		VU	Not listed
B	A393	Phalacrocorax pygmeus			X		LC	Not listed
B	A396	Branta ruficollis			X		VU	CR
B	A397	Tadorna ferruginea			X		LC	Not listed
B	A402	Accipiter brevipes			X		LC	Not listed
B	A403	Buteo rufinus			X		LC	Not listed
B	A404	Aquila heliaca			X		LC	EN
B	A417	Charadrius asiaticus			X		EN	Not listed
B	A420	Pterocles orientalis			X		LC	VU
B	A429	Dendrocopos syriacus			X		LC	Not listed
B	A442	Ficedula semitorquata			X		LC	Not listed
B	A452	Bucanetes githagineus			X		LC	EN
B	A509	Aquila nipalensis			X		LC	EN
B	A511	Falco cherrug			X		EN	CR
B	A515	Glareola nordmanni			X		LC	NT
B	A516	Charadrius leschenaultii			X		NT	VU
B	A533	Oenanthe pleschanka			X		LC	Not listed
B	AAA1	Non-Res. 6 migratory birds: 20000 waterfowl; 10000 pairs of seabirds for one or more species (IBA criterion A4iii)			X		n/a	n/a
B	AAA2	Non-Res. 6 migratory birds: 1% threshold (crit. B1i-iii)			X		n/a	n/a
B	AAA3	Non-Res. 6 migratory birds: 'bottleneck' sites holding >5000 storks, >3000 raptors and cranes (IBA criterion B1iv)			X		n/a	n/a
F	1130	Aspius aspius		X		X	LC	Not listed
F	1134	Rhodeus sericeus amarus/5339 Rhodeus amarus				X	LC	Not listed
F	1141	Chalcalburnus chalcoides		X		X	LC	Not listed
F	1143	Barbus capito/5918 Luciobarbus capito	X	X		X	VU	VU
F	1146	Sabanejewia aurata				X	LC	Not listed
F	2522	Pelecus cultratus				X	LC	CR

H	A1.11	Mussel and/or barnacle communities				X	n/a	No red list for habitats
H	A2.2	Littoral sand and muddy sand				X	n/a	No red list for habitats
H	A2.5	Coastal saltmarshes and saline reedbeds				X	n/a	No red list for habitats
H	A3	Infralittoral rock and other hard substrata				X	n/a	No red list for habitats
H	B1.6	Coastal dune scrub				X	n/a	No red list for habitats
H	C1.1	Permanent oligotrophic lakes, ponds and pools	X	X			n/a	No red list for habitats
H	C1.225	Floating <i>Salvinia natans</i> mats	X	SR REF			n/a	No red list for habitats
H	C1.2416	<i>Nelumbo nucifera</i> beds				X	n/a	No red list for habitats
H	C1.25	Charophyte submerged carpets in mesotrophic waterbodies	SR REF	SR REF			n/a	No red list for habitats
H	C1.32	Free-floating vegetation of eutrophic waterbodies	SR	SR		SR	n/a	No red list for habitats
H	C1.33	Rooted submerged vegetation of eutrophic waterbodies	SR REF	SR REF			n/a	No red list for habitats
H	C1.3411	<i>Ranunculus</i> communities in shallow water	X				n/a	No red list for habitats
H	C1.4	Permanent dystrophic lakes, ponds and pools		X		X	n/a	No red list for habitats
H	C1.5	Permanent inland saline and brackish lakes, ponds and pools				X	n/a	No red list for habitats
H	C1.66	Temporary inland saline and brackish waters		X		X	n/a	No red list for habitats
H	C2.12	Hard water springs	SR	SR			n/a	No red list for habitats
H	C2.18	Acid oligotrophic vegetation of spring brooks	SR	SR			n/a	No red list for habitats
H	C2.19	Lime-rich oligotrophic vegetation of spring brooks	SR	SR			n/a	No red list for habitats
H	C2.1A	Mesotrophic vegetation of spring brooks	SR	SR			n/a	No red list for habitats
H	C2.1B	Eutrophic vegetation of spring brooks	SR	SR			n/a	No red list for habitats
H	C2.25	Acid oligotrophic vegetation of fast-flowing streams	SR	SR			n/a	No red list for habitats

H	C2.26	Lime-rich oligotrophic vegetation of fast-flowing streams	SR	SR			n/a	No red list for habitats
H	C2.27	Mesotrophic vegetation of fast-flowing streams	SR	SR			n/a	No red list for habitats
H	C2.28	Eutrophic vegetation of fast-flowing streams	SR	SR			n/a	No red list for habitats
H	C2.33	Mesotrophic vegetation of slow-flowing rivers	SR	SR			n/a	No red list for habitats
H	C2.34	Eutrophic vegetation of slow-flowing rivers	SR	SR			n/a	No red list for habitats
H	C3.4	Species-poor beds of low-growing water-fringing or amphibious		X		SR	n/a	No red list for habitats
H	C3.51	Euro-Siberian dwarf annual amphibious swards (but excluding C3.5131 Toad-rush swards)	SR				n/a	No red list for habitats
H	C3.55	Sparsely vegetated river gravel banks	X	X		X	n/a	No red list for habitats
H	C3.62	Sparsely vegetated river gravel banks	X	X		X	n/a	No red list for habitats
H	D2.3	Transition mires and quaking bogs	SR REF				n/a	No red list for habitats
H	D4.1	Rich fens, including eutrophic tall-herb fens and calcareous flushes and soaks	X	SR REF		SR REF	n/a	No red list for habitats
H	D4.2	Basic mountain flushes and streamsides, with a rich arctic-montane flora	X				n/a	No red list for habitats
H	D5.2	Beds of large sedges normally without free-standing water	SR	SR			n/a	No red list for habitats
H	D6.1	Inland saltmarshes		X		X	n/a	No red list for habitats
H	E1.11	Euro-Siberian rock debris swards	SR				n/a	No red list for habitats
H	E1.2	Perennial calcareous grassland and basic steppes		X		X	n/a	No red list for habitats
H	E1.3	Mediterranean xeric grassland		X		X	n/a	No red list for habitats
H	E2.3	Mountain hay meadows	SR				n/a	No red list for habitats
H	E3.3	Sub-mediterranean humid meadows	SR	SR		SR REF	n/a	No red list for habitats
H	E3.4	Moist or wet eutrophic and mesotrophic grassland	X	X		X	n/a	No red list for habitats

H	E3.5	Moist or wet oligotrophic grassland	X			X	n/a	No red list for habitats
H	E4.3	Acid alpine and subalpine grassland	X	X			n/a	No red list for habitats
H	E4.4	Calcareous alpine and subalpine grassland	X	X			n/a	No red list for habitats
H	E5.4	Moist or wet tall-herb and fern fringes and meadows	X	X		X	n/a	No red list for habitats
H	E5.5	Subalpine moist or wet tall-herb and fern stands	X	X			n/a	No red list for habitats
H	E6.2	Continental inland salt steppes		X		X	n/a	No red list for habitats
H	F2.22	Alpine acidocline Rhododendron heaths	X				n/a	No red list for habitats
H	F3.245	Eastern Mediterranean deciduous thickets				SR	n/a	No red list for habitats
H	F3.247	Ponto-Sarmatic deciduous thickets		X			n/a	No red list for habitats
H	F5.13	Juniper matorral				X	n/a	No red list for habitats
H	F6.8	Xero-halophile scrubs		X		X	n/a	No red list for habitats
H	F7	Spiny Mediterranean heaths (phrygana, hedgehog-heaths and related coastal cliff vegetation)		X		X	n/a	No red list for habitats
H	F9.1	Riverine scrub	X	X		X	n/a	No red list for habitats
H	F9.3	Southern riparian galleries and thickets	X	X		X	n/a	No red list for habitats
H	G1.11	Riverine Salix woodland	X	X		X	n/a	No red list for habitats
H	G1.12	Boreo-alpine riparian galleries	X				n/a	No red list for habitats
H	G1.21	Riverine Fraxinus - Alnus woodland, wet at high but not at low water	X			X	n/a	No red list for habitats
H	G1.22	Mixed Quercus - Ulmus - Fraxinus woodland of great rivers	X			X	n/a	No red list for habitats
H	G1.3	Mediterranean riparian woodland		X		X	n/a	No red list for habitats
H	G1.44	Wet-ground woodland of the Black and Caspian Seas				X	n/a	No red list for habitats
H	G1.6	Fagus woodland	X			X	n/a	No red list for habitats

H	G1.A1	Quercus - Fraxinus - Carpinus betulus woodland on eutrophic and mesotrophic soils	X	X		X	n/a	No red list for habitats
H	G1.A4	Ravine and slope woodland	X			X	n/a	No red list for habitats
H	G1.A7	Mixed deciduous woodland of the Black and Caspian Seas	X			X	n/a	No red list for habitats
H	G3.4E	Ponto-Caucasian [Pinus sylvestris] forests	X				n/a	No red list for habitats
H	G3.9	Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]	X	X		X	n/a	No red list for habitats
H	H1	Terrestrial underground caves, cave systems, passages and waterbodies	SR	X		X	n/a	No red list for habitats
H	H2.3	Temperate-montane acid siliceous screes	SR	SR		SR	n/a	No red list for habitats
H	H2.4	Temperate-montane calcareous and ultra-basic screes	SR	SR		SR	n/a	No red list for habitats
H	H2.5	Acid siliceous screes of warm exposures	SR	SR		SR	n/a	No red list for habitats
H	H2.6	Calcareous and ultra-basic screes of warm exposures	SR	SR		SR	n/a	No red list for habitats
H	H3.1	Acid siliceous inland cliffs	SR	SR		SR	n/a	No red list for habitats
H	H3.2	Basic and ultra-basic inland cliffs	SR	SR		SR	n/a	No red list for habitats
H	H3.511	Limestone pavements	SR	SR		SR	n/a	No red list for habitats
I	1014	Vertigo angustior				X	VU	Not listed
I	1016	Vertigo moulinsiana	NE				EN	Not listed
I	1043	Lindenia tetraphylla				X	VU	Not listed
I	1060	Lycaena dispar	X	X		X	LC	Not listed
I	1078	Callimorpha quadripunctaria/ 6199 Eupalagia quadripunctaria	X			X	LC	Not listed
I	1081	Dytiscus latissimus				X	VU	Not listed
I	1083	Lucanus cervus	X			X	NT	Not listed
I	1087	Rosalia alpina	X	X		X	LC	VU
I	1088	Cerambyx cerdo	X			X	NT	Not listed
I	4039	Nymphalis vaualbum	SR				LC	Not listed

I	4043	Pseudophilotes bavius	X				LC	Not listed
I	4045	Coenagrion ornatum	X				NT	Not listed
M	1302	Rhinolophus mehelyi	X	X			VU	EN
M	1303	Rhinolophus hipposideros	X	X		X	NT	CR
M	1304	Rhinolophus ferrumequinum	X	X		X	NT	Not listed
M	1305	Rhinolophus euryale	X	X		SR	VU	CR
M	1306	Rhinolophus blasii	X	NE			VU	CR
M	1307	Myotis blythii	X	X		SR	NT	Not listed
M	1308	Barbastella barbastellus	X			X	VU	CR
M	1310	Miniopterus schreibersi	SR REF	X			VU	VU
M	1310	Miniopterus schreibersii				SR REF	VU	VU
M	1321	Myotis emarginatus	X			X	LC	Not listed
M	1323	Myotis bechsteini	X				VU	CR
M	1352	Canis lupus	X	X		X	LC	Not listed
M	1354	Ursus arctos	X	X		X	LC	Not listed
M	1355	Lutra lutra	X	X		X	NT	VU
M	1361	Lynx lynx	X	SR REF		X	LC	VU
M	1372	Capra aegagrus		X			NT	VU
M	2023	Panthera pardus	X	X		X	VU	CR
M	2635	Vormela peregusna				X	VU	DD
M	2649	Gazella subgutturosa				X	VU	VU
P	1418	Ophioglossum polyphyllum	X			X	DD	Not listed
P	1428	Marsilea quadrifolia				X	LC	VU
P	1429	Marsilea strigosa				X	VU	Not listed
P	1528	Saxifraga hirculus	X				DD	Not listed
P	1581	Kosteletzkya pentacarpos				X	VU	Not listed
P	1689	Dracocephalum austriacum	X				DD	Not listed
P	1758	Ligularia sibirica	X			X	DD	Not listed
P	2068	Microcnemum coralloides ssp. Anatolicum		X			VU	Not listed
P	2098	Paeonia tenuifolia	X	X		X	DD	Not listed
P	2172	Vaccinium arctostaphylos	SR			SR REF	DD	Not listed
P	2326	Dactylorhiza chuhensis	SR REF	SR REF			Lc	Not listed

P	2333	Stevaniella satyrioides				X	EN	Not listed
P	4067	Echium russicum	X	X		X	LC	Not listed
P	4093	Rhododendron luteum	X				LC	Not listed
R	1219	Testudo graeca	X	X		X	VU	NT
R	1220	Emys orbicularis	X	X		X	NT	Not listed
R	1222	Mauremys caspica	X	X		X		Not listed
R	1279	Elaphe quatuorlineata	SR	SR		SR	NT	Not listed
R	1298	Vipera ursinii	X	X		SR	CR	Not listed

Notes: Feature group

A = Amphibians

B = Birds

F = Fish

H = Habitats

I = Insects

M = Mammals

P = Plants

R = Reptiles

Status by biogeographical region

SR = Scientific Reserve (research needed be conducted to find appropriate sites)

SR REF = Scientific Reserve for the Reference List (Regular occurrence uncertain, research needed)

IUCN status

LC = Least Concern

NT = Near Threatened

VU = Vulnerable

EN = Endangered

DD = Data Deficient

CR = Critically Endangered

Annex C: Proposed structure for a site management plan to protect species and habitats

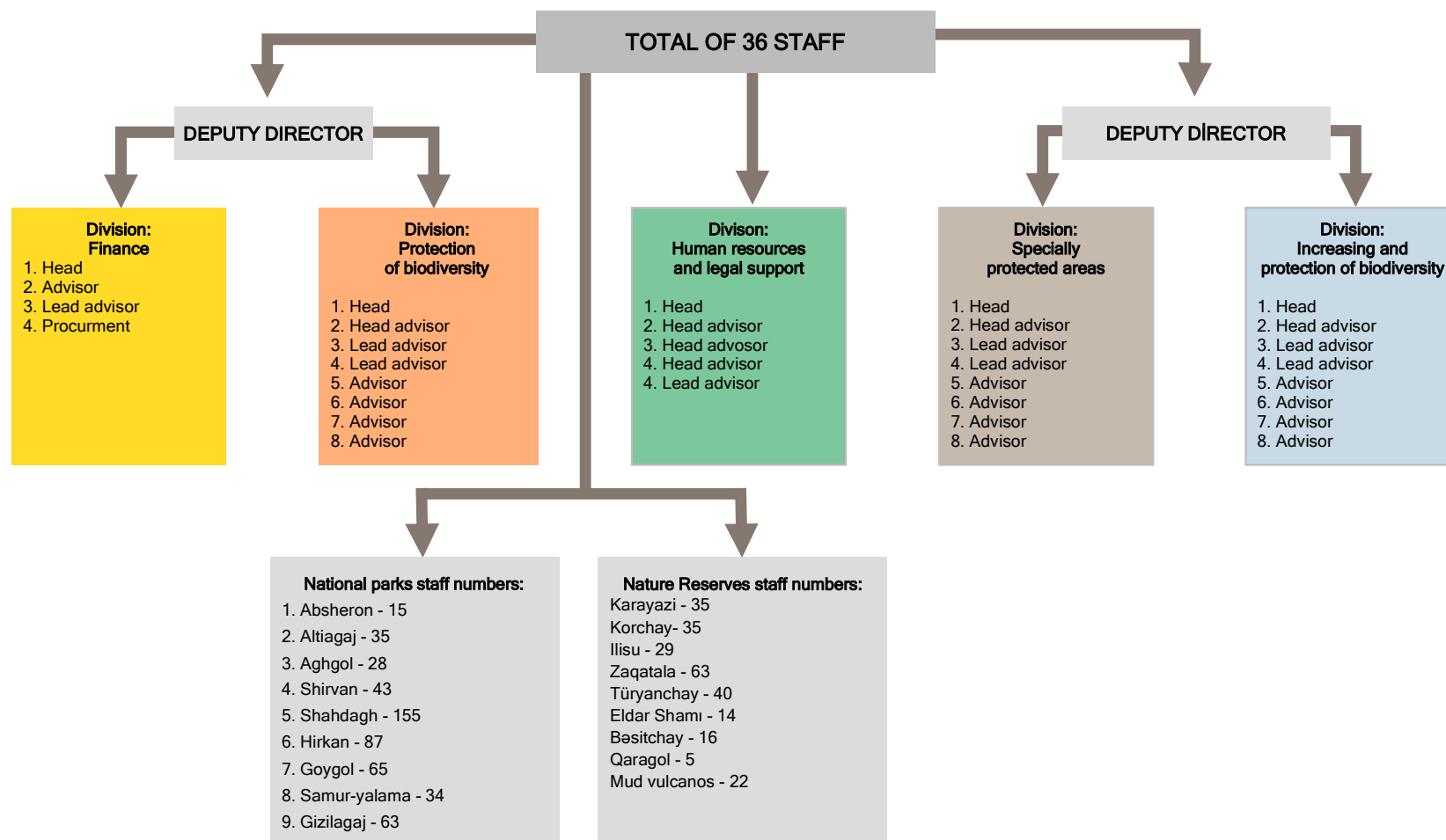
Title: Management Plan for Emerald site XY

- I. Introduction
 - A. Background and Context
 - B. Purpose and Objectives of the Site Management Plan
 - C. Legal and Policy Framework
- II. Site Description
 - A. Location and Boundaries
 - B. Ecological and Cultural Significance
 - C. Threats and Challenges
 - D. Stakeholder Analysis
- III. Vision, Goals, and Objectives
 - A. Vision Statement
 - B. Goals and Objectives
 - C. Key Performance Indicators
- IV. Management Zoning and Boundaries
 - A. Zoning System and Designation of Areas
 - B. Boundary Demarcation
 - C. Zoning Regulations and Guidelines
- V. Management Measures and Actions
 - A. Biodiversity Conservation
 - B. Habitat Management and Restoration
 - C. Invasive Species Control
 - D. Wildlife Protection and Monitoring
 - E. Sustainable Tourism and Visitor Management
 - F. Community Engagement and Livelihoods
 - G. Research and Monitoring Programs
 - H. Emergency Response and Disaster Management
 - I. Climate Change Adaptation and Mitigation
- VI. Management Operations
 - A. Organizational Structure and Staffing
 - B. Roles and Responsibilities
 - C. Training and Capacity Building
 - D. Financial Resources and Budgeting
 - E. Collaboration and Partnerships
 - F. Reporting and Evaluation Mechanisms
- VII. Monitoring and Evaluation
 - A. Monitoring Indicators and Parameters
 - B. Data Collection and Analysis Methods
 - C. Reporting and Communication
 - D. Adaptive Management and Review Process

- VIII. Stakeholder Engagement and Communication
 - A. Stakeholder Identification and Analysis
 - B. Consultation and Participation Mechanisms
 - C. Communication Strategies
 - D. Conflict Resolution and Grievance Mechanisms
- IX. Emergency Response and Contingency Plans
 - A. Risk Assessment and Planning
 - B. Emergency Preparedness and Response
 - C. Contingency Funding and Resource Allocation
- X. Compliance with international programs and conventions
 - A. Emerald Network Standards and Criteria
 - B. IUCN Guidelines and Best Practices
 - C. Ramsar Criteria and Management Implications
 - D. CBD Requirements
 - E. Compliance Monitoring and Reporting
- XI. Conclusion
 - A. Summary of Key Points
 - B. Next Steps and Implementation Timeline

Annex D: Service of protection of biodiversity Ministry of Ecology and Natural Resources

Figure 4. Organogram of staff allocated to Emerald sites management





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Guidelines for Developing Emerald Sites Management Plans in Azerbaijan

These guidelines, part of the EU4Environment Programme, outline a tailored framework for managing Azerbaijan's unique Emerald Network sites. Aligned with the Bern Convention, these plans aim to preserve Azerbaijan's natural capital and enhance environmental wellbeing. They focus on protecting endangered species and habitats, emphasizing principles like ecological integrity, stakeholder engagement, and sustainable use. Specific attention is given to unique local species and habitats, addressing legal and institutional gaps in protected area management.

Covering 19.39 percent of the country, candidate Emerald sites showcase diverse ecosystems crucial for biodiversity. Management plans prioritize long-term conservation objectives, integrating international goals and national programs. The sites are categorized based on characteristics and management needs, but only 10.3 percent of Azerbaijan's territory is currently protected, emphasizing the need for expansion.

Emerald sites face diverse threats, necessitating site-specific assessments. Therefore, the guidelines include establishing corridors, financial incentives, public awareness, and legislative reforms. The conservation efforts focus on safeguarding key habitats, protecting endangered species, and maintaining ecological processes.

The significance of Emerald sites to local communities is highlighted, emphasizing principles of sustainable use and community engagement. Biodiversity monitoring is deemed crucial, despite challenges due to a decrease in scientific staff. To address this deficiency it is vital the involvement of stakeholder for effective management, and strategies for raising awareness involve education programs, media engagement, and collaboration with NGOs.

Programme website:

www.eu4environment.org

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