

**Challenges and opportunities
for transboundary biodiversity
monitoring and conservation
in Central Asian regions
bordering Afghanistan**



The Organization for Security and Co-operation in Europe (OSCE) is proud to present this report produced under the project “Addressing vulnerabilities and improving resilience in communities in the Central Asia border regions with Afghanistan: Natural resource management (water management and energy security)”.

This report provides a concise analysis of the challenges and opportunities for transboundary biodiversity monitoring and conservation in southern parts of Central Asia bordering Afghanistan. It covers agreements and ongoing and planned co-operation activities, and makes recommendations for the OSCE, the countries and local communities on biodiversity conservation. It contributes to national, regional and global efforts to conserve biodiversity as part of the Kunming-Montreal Global Biodiversity Framework.

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International Day
for Biodiversity
2024

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Introduction

The Mountains of Central Asia are one of 36 world biodiversity hotspots — some of Earth’s most biologically diverse yet threatened areas. Mountain ranges form diverse habitats and ecological corridors — cliffs, high mountain plateaus, forests and grasslands used by migratory species that cross countries and borders. They are home to about 1,500 unique (endemic) flora species and many wild crop relatives. In contrast to the surrounding deserts that dominate the arid southern parts of Central Asia, the number and density of species and ecosystems is highest in the mountains. A high concentration and diversity of unique species, the presence of globally endangered species and species aggregations constitute the Key Biodiversity Areas (KBAs). CEPF and Zoï Environment Network have identified about 150 KBAs in the Mountains of Central Asia.

Intense cattle grazing, overuse of forests and pastures, and poaching, combined with climate impacts and other challenges, pose threats to biodiversity (ref). Limited transboundary co-operation between protected areas close to borders, restricted access in border areas in transboundary high-value landscapes and shared ecosystems lead to ecological fragmentation and reduced conservation effectiveness.

Central Asia’s rivers cross national boundaries and are used extensively for irrigation and hydropower. Rivers are not only vital to the population and key economic sectors, but they are also aquatic ecosystems with wetlands used by thousands of migratory species. Water ecosystems are under growing pressure from water withdrawals, pollution, habitat change by agriculture and dams, and climate change. At the same time, aquatic ecosystems and eco-corridors along the rivers provide opportunities for transboundary co-operation.

To provide advisory services, Central Asia countries established interstate co-ordination commissions on water and the environment, and created several regional centres on water, environment, and glaciers. Regional action plans and programmes for the Aral Sea basin cover a number of environmental measures, and the national biodiversity strategies focus on conservation priorities. However, regional co-operation on biodiversity is lagging behind and, for various reasons, Afghanistan is not part of regional water and environmental agreements and actions.

Within the Framework for Response to the Implications of Afghanistan for the OSCE Region (RIAOR), the OSCE promotes cross-border dialogues and assessments, and conducts site-specific interventions to improve local energy security and to reduce pressures on wild nature.

This report explores the challenges and opportunities for biodiversity monitoring and conservation of Central Asian terrestrial and aquatic ecosystems and eco-corridors bordering Afghanistan. The report contributes to implementation of decisions and momentum of the 14th Meeting of the Parties to the Convention on Migratory Species, held in Samarkand, Uzbekistan, in February 2024 and can be used for preparations for the 20th Meeting of the Parties to the CITES Convention, scheduled in Samarkand for 2025.

The report also builds on the outcomes of a joint OSCE-GIZ Regional Workshop on Conservation of Migratory Species in Central Asia, held in Ashgabat, Turkmenistan, in November 2023. Recommendations integrate conclusions and decisions of these meetings and partly build on a strategic approach and findings of the 2018 European Union report “Larger Than Tigers” on biodiversity conservation in Asia as well as the 2023 EU-Central Asia Water, Environment and Climate Change Cooperation (WECOOP) report “Analytical review of biodiversity and significant ecosystems conservation priorities in Central Asia”.



Wakhan National Park, Afghanistan



Gissar Nature Reserve, Uzbekistan



Lower Amudarya Biosphere Reserve, Uzbekistan

1. Biodiversity threats and challenges

This chapter builds on the analysis that Zoï Environment Network carried out in co-operation with the Critical Ecosystems Partnership Fund (CEPF), UNEP and the OSCE in the framework the Afghan-Tajik hydrology and environment collaborative process (ref CEPF, UNEP, OSCE), updated with new and additional information.

Pressure on natural resources from population growth is inevitable, and the population of the Afghan-south Central Asia region is growing rapidly, with Uzbekistan alone increasing by almost 1 million people per year. More people require more land, fuel, food, and water. Population density varies greatly from more than 500 people/km² in populated valleys to as low as 1–5 people/km² in the high mountain areas. Low density should be an advantage for conservation, but the landscapes are so fragile that even small number of people can cause harm.

The high-altitude Murgab district in eastern Tajikistan, for example, on the border with China and Afghanistan, has about 16,000 people living in the area of 38,000 km² (a size comparable to Switzerland), yet suffers from overgrazing and excessive collection of the teresken shrub for fuel. Due to the remoteness of the area and the presence of large ungulates (argali), over-hunting has also been a major problem. In the last 5–10 years this issue has largely been addressed through improved monitoring along with private, governmental and community-based conservation efforts and energy security measures, but some physical barriers to wildlife migration remain. Competition from livestock for pastures and overgrazing lead to less fodder for native ungulates. The rough terrain and harsh climate make working in the Zorkul Nature Reserve and other key biodiversity areas here difficult and expensive.

Afghanistan's Wakhan is similar to the Murgab district. It is a key biodiversity area with significant density of snow leopards and endemic species, and home to about 20,000 people whose poverty, low education and lack of access to energy drives them to the unsustainable use of natural resources. Insecurity also affects biodiversity

in Afghanistan, though the Wakhan Valley has been fortunate to avoid the ravages of conflict. Human-wildlife conflict was a major threat in Wakhan, where retaliatory killing of snow leopards was practiced by herders trying to protect livestock. Joint efforts of local and international conservation groups and authorities led to the creation of a national park, improved monitoring, and a reduction in human-wildlife conflict, but many challenges remain, especially due to limited operational opportunities now.

Ecosystems and endangered and endemic species across the Afghan-Central Asia border regions suffer most from overgrazing. Natural forests cannot recover due to a combination of overgrazing and over-harvesting. Agricultural expansion and construction continue right up to the protected areas, often accompanied by unauthorized grazing, wood collection, water use, gravel extraction or mining inside protected areas.

Changes in land use, the modification of natural river flows, and the withdrawal of water from rivers are the most common examples of habitat change. Most lowland semi-deserts and foothills have long been converted to agricultural use, which has resulted in the loss of grasslands and semi-desert ecosystems.

The disruption of river flows by large hydropower dams and canals and the excessive withdrawals of water and high losses of irrigation schemes led to the Aral Sea crisis, and are a continuing ecological risk. While the growing number of dams and expansion of irrigation in the region — both small and large — promise energy and food security, they also raise concerns, especially the ongoing construction in northern Afghanistan of the Kosh-Teppa Canal, which will divert water from the Amu Darya River.

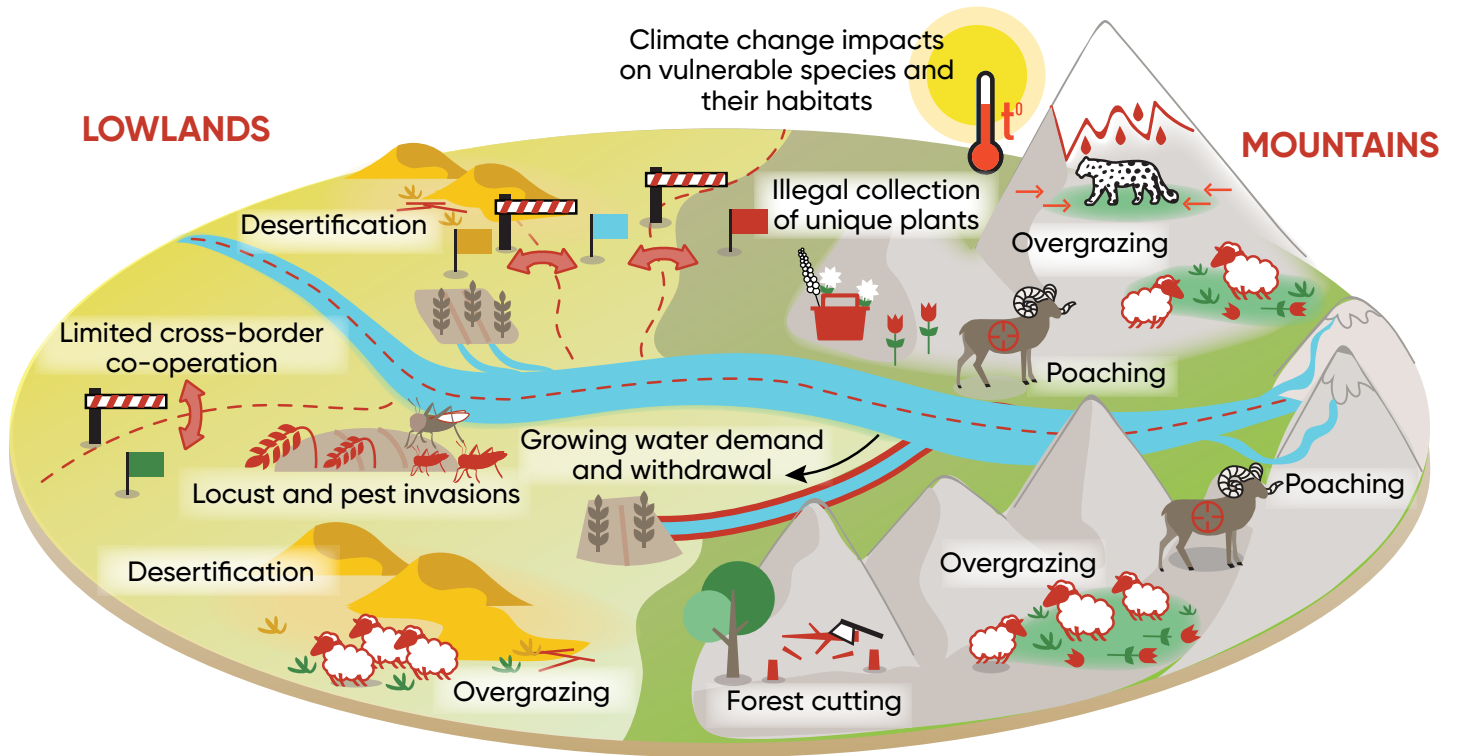
The unregulated collection of plants for commercial or household use is a threat to endemic tulip species and medicinal plants. In many areas where these plants are collected, people often do not realize that the species is threatened.



Grazing in mountain forests, Turkmenistan



Gravel extraction in riverbed, Uzbekistan



Invasive species threaten freshwater ecosystems and agricultural landscapes. Locusts and pests from Afghanistan often affect near-border regions in Central Asia. Pollution is a lesser issue, but plastic waste, municipal waste mismanagement and extraction of minerals in river beds may damage local ecosystems.

Finally, climate impacts in mountain and glacier areas are increasingly important, altering biological and hydrological cycles and affecting the distribution of suitable habitats and migration patterns.

Low salaries make attracting and retaining the best personnel difficult for the authorities. Many protected areas lack staff, monitoring tools, and equipment, but international projects and civil society organizations provide important support and innovations. A declining knowledge base includes a limited availability of up-to-date data for decision-making and low awareness among the public. Aarhus centres, activists, CSOs and mass media all play an important role in reversing this trend.

2. Multilateral frameworks and cross-border initiatives for nature conservation

Several multilateral environmental agreements, including the Convention on Biodiversity, the Convention on Wetlands of International Importance, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Convention on Migratory Species (CMS) provide a framework for international collaboration on species, ecosystems, conservation targets and policies. The 14th Meeting of the Parties to the CMS held in Samarkand, Uzbekistan, in February 2024, was attended by 2,000 delegates and drew global attention to Central Asia, and contributed to increased bilateral and regional co-operation.

The Wetlands Convention has launched the “Ramsar Regional Initiative for Central Asia” currently involving Kazakhstan, Kyrgyzstan and Turkmenistan. The CMS has launched the Central Asia Mammals Initiative (CAMI), which acts as a catalyst for collaboration among the countries and all relevant stakeholders to reverse the population decline of 15 large migratory mammal species throughout their range covering 14 countries in Eurasia. The Memoranda of Understanding (MoUs) related to the CMS on saiga, Bukhara Deer, and migratory birds and their flyways encourage regular contacts, information exchange and co-ordinated measures on cross-border conservation for these migratory species. CMS has also produced a single species action plan for argali (2014–2024).

CITES, in partnership with TRAFFIC (www.traffic.org) and civil society organizations in Central Asia engages with national environmental, border security and law enforcement authorities to reduce wildlife crime, and to improve reporting, awareness and collaboration.

In 2024, the Regional Environmental Centre of Central Asia (CAREC) based in Almaty became a subregional technical and scientific co-operation centre for the Convention on Biological Diversity with responsibility for promoting and facilitating implementation of the Kunming-Montreal Global Biodiversity Framework. This new role of CAREC, combined with its regional function for the Wetlands Convention and facilitation of the Resilient Landscapes

Initiative of the World Bank, provides an opportunity for transboundary biodiversity co-operation.

The Global Snow Leopard and Ecosystems Protection Programme (GSLEP), with its Secretariat in Bishkek, contributes to national and global efforts on monitoring and protection of this species.

The UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention) is essential for awareness raising and reporting, including on biodiversity. The Aarhus Convention is also active in facilitating effective access to information and public participation in decisions regarding genetically modified organisms (GMO) and the Cartagena Protocol on Biosafety. A network of the Aarhus centres in Central Asia, nurtured by the OSCE, is involved in awareness raising on nature conservation, study tours to nature reserves for journalists and celebrations of the world biodiversity, environmental and water days, particularly in Tajikistan.

The UNECE Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) is complementary to the CMS in the planning of linear and major infrastructure that can harm migratory species. None of the focus countries is yet a party to the Espoo Convention, but the OSCE, in co-operation with the Convention Secretariat, provides assistance in exchanging experiences and learning the tools and methods of applying the basic principles and good practices of the Convention.

The Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) requires parties to prevent, control and reduce transboundary impacts and to use water in a reasonable and equitable way. In Central Asia, three downstream countries are parties to this Convention, and the OSCE, together with the UNECE, is working with upstream countries, including Afghanistan (in 2013–2018) and Tajikistan, to pursue the good practices and collaboration on water.

Participation of Central Asia countries bordering Afghanistan in the biodiversity-related conventions, regional initiatives, programmes and MoUs:

| Instrument or initiative | Afghanistan | Tajikistan | Turkmenistan | Uzbekistan |
|---|--------------------|-------------------|---------------------|-------------------|
| CITES (<i>transboundary trade in species</i>) | ✓ | ✓ | | ✓ |
| CMS (<i>migratory species</i>) | ✓ | ✓ | ✓ | ✓ |
| Central Asia Flyway and Birds of Prey | ✓ | ✓ | ✓ | ✓ |
| Central Asia Mammals Initiative (CAMI) | ✓ | ✓ | ✓ | ✓ |
| MoU on Bukhara deer | | ✓ | ✓ | ✓ |
| Single Species Action Plan on Argali | ✓ | ✓ | ✓ | ✓ |
| Convention on Biodiversity (CBD) | ✓ | ✓ | ✓ | ✓ |
| UNESCO World Heritage Convention national and regional sites (<i>Western Tien Shan, Cold Deserts</i>) | ✓ | ✓ | ✓ | ✓ |
| Aarhus Convention (<i>environmental information</i>) | | ✓ | ✓ | |
| Espoo Convention (<i>environmental impact assessment</i>) | | | | |
| Water Convention (<i>protection and use of transboundary watercourses and international lakes</i>) | | | ✓ | ✓ |
| Ramsar Convention (<i>wetlands</i>) | | ✓ | ✓ | ✓ |
| Central Asia Ramsar Initiative | | | ✓ | |
| EU's "Larger Than Tigers" strategic approach | ✓ | ✓ | ✓ | ✓ |
| EU's WECOOP Central Asia climate, water and environment co-operation | | ✓ | ✓ | ✓ |
| GIZ Regional programmes in Central Asia on natural resources management | | ✓ | ✓ | ✓ |
| The Aral Sea agreements and institutions (<i>IFAS, other</i>) | | ✓ | ✓ | ✓ |
| GLSEP (<i>Global Snow Leopard conservation programme</i>) | ✓ | ✓ | | ✓ |
| TRAFFIC Central Asia (<i>transboundary trade in species</i>) | | ✓ | ✓ | ✓ |
| World Bank RESILAND+ (<i>Resilient Landscapes</i>) | | ✓ | | ✓ |
| One Health in Central Asia (<i>risk of zoonoses</i>) | | ✓ | ✓ | ✓ |
| CEPF Mountains of Central Asia (<i>Key Biodiversity Areas and species conservation</i>) | | ✓ | ✓ | ✓ |
| International Decade for Action "Water for Sustainable Development" (2018–2028) | | ✓ | ✓ | ✓ |
| Five Years of Actions on Mountains (2023–2027) | | ✓ | ✓ | ✓ |

The following table summarizes bilateral co-operation agreements on biodiversity and the environment and geographic areas of co-operation between the Central Asia countries bordering Afghanistan:

| Instrument or geographic area | Country 1 | Country 2 |
|--|--------------------|-----------------------|
| Environmental co-operation MoU 2020 (<i>suspended</i>) | Afghanistan | ↔ Tajikistan |
| Environmental co-operation MoU 2022 (<i>initiated</i>) | Uzbekistan | ↔ Tajikistan |
| Pamir-Alai transboundary conservation partnership (<i>ended, suspended</i>) | Kyrgyzstan | ↔ Tajikistan |
| Pamir-Wakhan transboundary conservation partnership (<i>suspended</i>) | Afghanistan | ↔ Tajikistan |
| Zaravshan River transboundary water and conservation partnership (<i>recently initiated</i>) | Uzbekistan | ↔ Tajikistan |
| Talimarjan wetlands transboundary conservation partnership (<i>prospect</i>) | Uzbekistan | ↔ Turkmenistan |
| Babatag and Gissar Mountains transboundary conservation partnership (<i>prospect</i>) | Uzbekistan | ↔ Tajikistan |
| Murghab River transboundary water, climate change adaptation and conservation partnership (<i>prospect</i>) | Afghanistan | ↔ Turkmenistan |
| Koytendag-Surkhan Mountains joint nomination for the UNESCO World Heritage and ecosystem connectivity (<i>prospect</i>) | Uzbekistan | ↔ Turkmenistan |

In addition to the multilateral agreements and bilateral MoUs, local and international conservation groups are active in Central Asia cross-border collaboration covering species, eco-corridors and ecosystem connectivity, as well as capacity building for local communities and civil society organizations (CSOs).

The Critical Ecosystems Partnership Fund (CEPF), which focuses on the conservation of KBAs and priority species, jointly with Zoï Environment Network, produced an ecosystem profile for the Mountains of Central Asia in 2016–2017 and allocated \$7 million to a grant programme for 2019–2024 (six years) that funded around 100 smaller and larger projects involving 70 partners from CSOs.

CSOs have introduced innovations in biodiversity monitoring, including the Spatial Monitoring and Reporting Tool (SMART), worked with protected areas to reduce pressures in and around them, and contributed to public awareness raising among local communities. They are introducing new conservation techniques and concepts, reducing illegal hunting, collection and smuggling of species, and establishing micro-reserves.

The German Federal Enterprise for International Cooperation (GIZ, Deutsche Gesellschaft für Internationale Zusammenarbeit) is one of the most active and long-standing international partners in Central Asia on forests, pastures and biodiversity, with three ongoing programmes: Green Central Asia, which focuses on water and climate; the Integrative and Climate-sensitive Land Use in Central Asia (ILUCA); and Ecologically Oriented Development in the Aral Sea Region (ECO ARAL). Germany’s International Climate Initiative (IKI) supports the Central Asia Mammals and Climate Adaptation (CAMCA) project implemented by UNEP in partnership with the Convention on Migratory Species and local civil society organizations. In 2024, the OSCE Academy and GIZ, with support of the OSCE Programme Office in Bishkek, signed a Memorandum of Cooperation to continue their well-established partnership under Green Central Asia.

Ongoing regional activities include the World Bank’s Resilient Landscapes programme aims to facilitate cross-border co-operation at the landscape scale, including forests and protected areas.



Bird aggregation, Murgab River, Turkmenistan



Cranes, Turkmenistan



Wildlife monitoring, Turkmenistan

3. Current approaches and prospects for transboundary conservation

Currently, Tajikistan has the largest share of protected areas in Central Asia — 22 per cent of the country’s area, while Afghanistan and Turkmenistan have the smallest shares (3 per cent each). In addition to State Nature Reserves (IUCN category I) and national parks (IUCN category II), there are “softer” categories such as wildlife refuges or botanical reserves and nature monuments, which often have a local or temporary status and no personnel. Sometimes CSOs or media call them “paper parks”. Protected forests and game reserves are usually not counted as part of the protected areas.

About 500 protected areas now cover 6 to 8 per cent (depending on categories considered) of Central Asia and Afghanistan. This figure is well below the global biodiversity target (30%) by 2030 and the current global average (15%). The Global Biodiversity Plan encourages countries to explore and apply new approaches to conservation, including other effective area-based conservation measures (OECMs) under Target 3 “Conserve 30% of Land, Waters and Seas”.

Many of the protected areas in Central Asia are located in the border zones stretching along mountains and rivers, where unique and well-preserved nature is often present. Fences along borders are barriers that prevent migratory species from moving. Other impediments to cross-border co-operation include border security regimes and limited accessibility to border areas for monitoring and conservation purposes as well as the degree of freedom for local protected area managers to engage in direct cross-border co-operation.

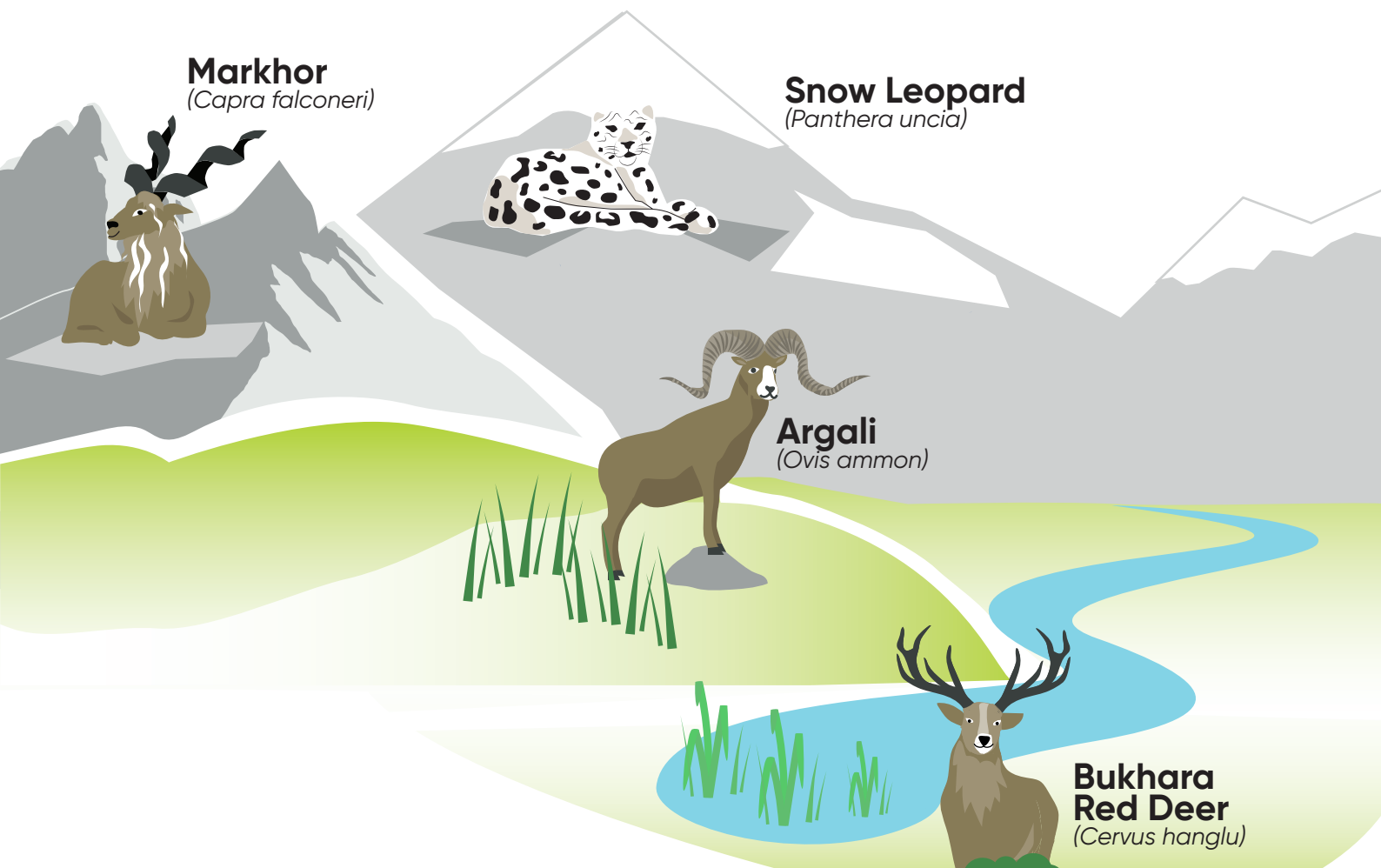
Weak interagency co-ordination, limited biodiversity monitoring and data sharing, non-compliance with protected area regulations (especially cattle grazing in these areas) and the high dependence of the local population on the use of natural resources (including nearby or in the protected areas), add to the constraints.

The border security situation in 2021–2024 along the Panj and Amu Darya Rivers and other Afghan borders with Central Asia was stable, but not conducive to biodiversity monitoring in near-border zones and in a transboundary manner. Border guards are often unaware of the unique value of nature and conservation, and countries need to make further efforts to raise awareness on wildlife management in the border zones.

In order to discuss and address these and other challenges of cross-border nature conservation, the OSCE and GIZ organized the Regional Workshop on Conservation of Migratory Species and Transboundary Co-operation in Protected Areas, in Ashgabat, Turkmenistan, on 21–22 November 2023, with representatives from nature protection and border security authorities from all countries of Central Asia. Recommendations from this workshop are summarized in the Recommendations section of this report.

Priorities for cross-border co-operation include:

- Border sections where minimization of barriers for migratory species, wildlife monitoring and ecological connectivity is essential for conservation
- Globally important wetlands and key biodiversity areas with and without formal protection status located near or along the borders
- Ecological corridors essential for ecosystem connectivity, species migration and survival
- Water ecosystems



To tackle cross-border species conservation challenges and crimes, countries co-operate under CITES (e.g. TRAFFIC) and CMS conventions (e.g. CAMI). Species living in the Central Asia-Afghanistan border regions include snow leopards, Marco Polo sheep (argali), markhor goats and Bukhara red deer. Countries have shown that co-ordinated and holistic approaches to conservation through community involvement, benefit-sharing and local solutions (including grazing regulations and the provision of alternative income and energy sources), backed by science (including species re-introduction and rehabilitation) and governance can lead to conservation success. Populations of these iconic species have recovered as threats have receded.

Species experts and CSOs work with the governments and the private sector to advise on safeguards and reintroduction and monitoring methods, and to reduce barriers for species movement. Another positive trend is that new renewable energy projects, particularly wind power, consider flyways and reduce risks for migratory and prey birds. However, water ecosystems (e.g. tugai forests and wetlands) and species (e.g. endangered and endemic fish species) continue to suffer from growing impacts and habitat fragmentation.

Cross-border conservation goes beyond species and includes protected areas, ecological corridors and landscapes that require agile management and continuous co-ordination. This approach was initially tested and created in the Western Tien Shan shared by Kazakhstan, Kyrgyzstan and Uzbekistan (the World Bank-GEF project 20 years ago) and in the Pamir-Alai Mountains shared by Kyrgyzstan and Tajikistan (the UNEP-GEF PALM project 15 years ago).



Migratory species

Snow Leopard (*Panthera uncia*)

included in the IUCN Red List (VU) and national Red Lists

23 October

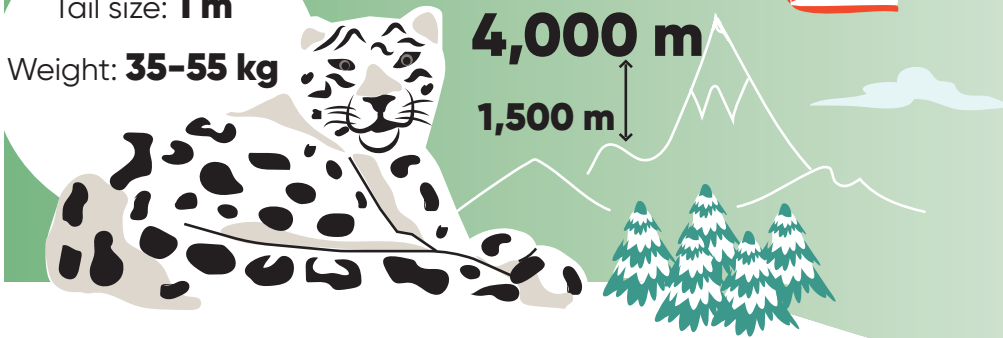
World Snow Leopard Day

Main habitats in Central Asia:

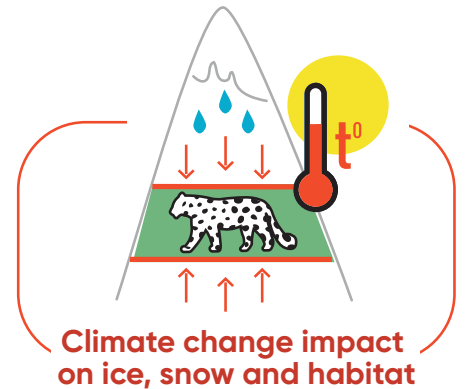
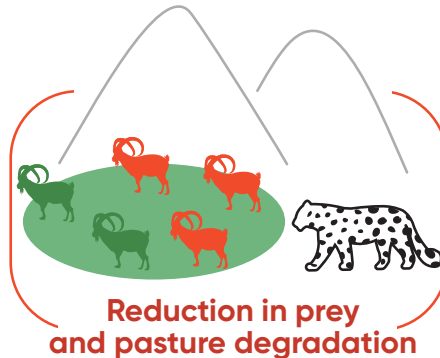
- Tajikistan:**
Tajik National Park
Zorkul Nature Reserve
Pamir, Hissar, Dashtijum
- Afghanistan:**
Wakhan National Park
Badakhshan
- Uzbekistan:**
Hissar Nature Reserve

Tail size: **1 m**
Weight: **35-55 kg**

Habitat range:
4,000 m
↓
1,500 m



Threats



Conservation

Alternative sources of income and livelihoods

Protection of livestock

Restoring habitat and prey species

Local community engagement in species conservation and monitoring

Improved efficiency of protected areas and patrols

SMART/SLIM monitoring, DNA and track analysis

Eco-corridors

Alternative energy sources to reduce pressure on wild nature



Migratory species

Argali (*Ovis ammon*)

High altitude plateaus, grassy mountain slopes

Horn size:
60-190 cm



Weight:
65-180 kg

Habitat range:
5,500 m

500 m



Included in the IUCN Red List (NT) and national Red Lists

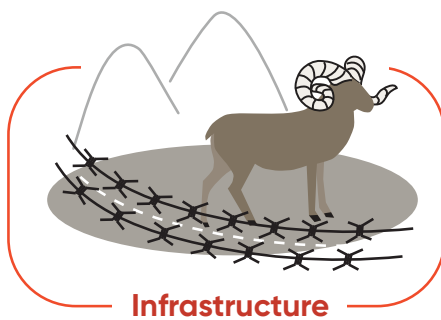
Main habitats in Central Asia:

- Tajikistan**
East Pamir
- Uzbekistan**
Nuratau
- Kyrgyzstan**
- Afghanistan**
Wakhan National Park
- China**

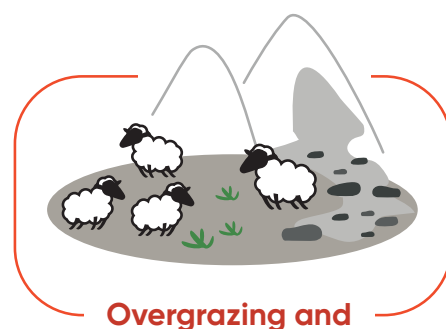
Threats



Poaching



Infrastructure and fences



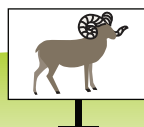
Overgrazing and competition for pastures

Conservation

Effective protected areas, poaching prevention



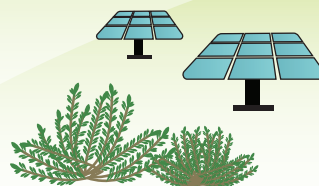
Monitoring and reporting



Limiting grazing



Local community engagement in species monitoring and protection, benefit sharing from trophy hunting



Reducing teresken shrub harvesting for fuel through alternative energy

Feeding in harsh weather



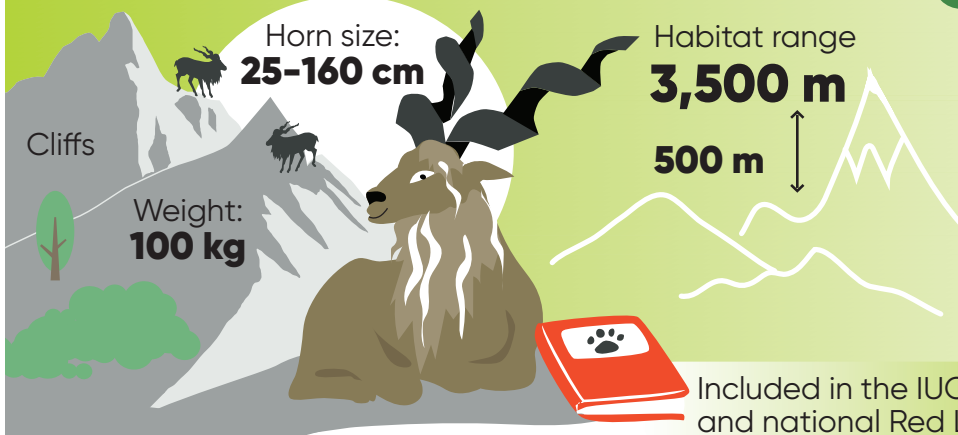
Transboundary biodiversity monitoring and conservation in Central Asia regions bordering Afghanistan



Be Part of the Plan

Migratory species

Markhor (*Capra falconeri*)



Horn size:
25-160 cm

Habitat range
3,500 m
500 m

Weight:
100 kg

24 May International Day of Markhor

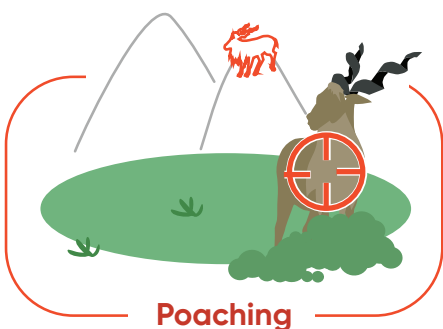
Main habitats in Central Asia:

- Tajikistan:**
Dashtijum Nature Reserve
- Uzbekistan:**
Surkhan State Reserve
- Turkmenistan:**
Koytendag Nature Reserve

Afghanistan

Included in the IUCN Red List (NT) and national Red Lists

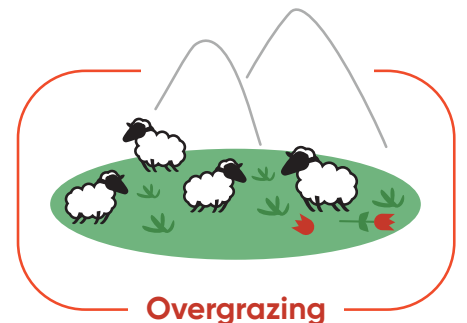
Threats



Poaching



Habitat destruction



Overgrazing

Conservation

Effective protected areas,
poaching prevention

Reducing pressure on habitat
by regulating grazing and
forest protection



Local community engagement in
species monitoring and protection,
benefit sharing from trophy hunting



Monitoring and
reporting

Transboundary biodiversity monitoring and conservation in Central Asia regions bordering Afghanistan



Be Part of the Plan

Migratory species

Bukhara Red Deer (*Cervus hanglu*)



Riverine forests

Antlers size:
70-110 cm

Weight: **200 kg**



Included in the IUCN Red List (LC) and national Red Lists

Main habitats in Central Asia:



Uzbekistan:

Lower Amu Darya Biosphere Reserve
Zaravshan National Park



Tajikistan:

Beshai Palangon (Tigrovaya Balka)
Romit Nature Reserve



Turkmenistan

Threats



Poaching, overgrazing



Tugai forest destruction,
forest fires



Gravel extraction from rivers,
damage to water ecosystems

Conservation

Transboundary cooperation under the bilateral agreements and the Convention on Migratory Species (CMS)



Protected areas, nurseries,
public awareness



Spatial
planning,
monitoring

Ban on gravel extraction from selected rivers,
ecological patrols,
riverine forest protection



Maintaining and
enhancing ecosystem
connectivity and
ecological river flow

Intended cross-border co-operation on wildlife conservation and monitoring in the Pamir-Hindukush region between Tajikistan and Afghanistan in the Wakhan Valley — a key biodiversity area with endemic species, snow leopards and ungulates — was suspended after the Taliban came to power in 2021. Nevertheless, nature-based solutions in the Afghan-Tajik border region piloted by UNEP, GIZ, and others prior to 2021 are considered successful, and when the political and border situations allow, these plans and pilots could be revived.

With regard to water ecosystems, the pressures appear to be even greater than for terrestrial ecosystems, but the lack of data and the difficult tasks of monitoring and gaining access to the Amu Darya River make it difficult to assess the situation and engage in conservation. Other transboundary watercourses, however, present a range of opportunities — from the exchange of experience, joint commissions and coordinated plans to practical measures for reducing river fragmentation, increasing or securing ecological flows, and preventing illegal gravel extraction.

In 2023–2024, Central Asia countries initiated the revision and update of their national biodiversity targets and strategies in line with the Kunming-Montreal Global Biodiversity Framework (GBF or the Biodiversity Plan) and its 2030–2050 goals and aspirations. They are also working on progress and reporting towards SDG Target 15 “Life on Land”. Civil society organizations support authorities in wildlife monitoring and reduction of pressures, and are willing to participate in the formulation and implementation of biodiversity targets. Considering the theme of the International Day for Biodiversity 2024 “Be Part of the Plan”, Zoï Environment Network with support from the CEPF and OSCE conducted round tables and public awareness events, and collected views from CSOs on the revision of biodiversity targets and the role and engagement of the CSOs.



Wildlife rehabilitation centre, Turkmenistan

Country updates

Afghanistan

The arrival of the Taliban upset the balance of power and relations with the neighbouring states, but in general, the structure and mandates of the ministries and agencies have been preserved and cross-border relations restored to functional levels. The National Environmental Protection Authority (NEPA) of Afghanistan is responsible for biodiversity protection and national parks management.

Afghanistan has three national parks — the Wakhan National Park on the border with Tajikistan, Bandi-Amir National Park in the central part of the country, and the Nuristan National Park on the border with Pakistan. International and local conservationists, scientists and local community members in northern Afghanistan were involved in wildlife monitoring before the Taliban came to power in 2021. Jointly with the NEPA they co-operated with neighbouring Tajikistan on conservation and assessment of the state and trends in biodiversity and migratory species. The OSCE was supporting the Afghan-Tajik hydrology and environment co-operation meetings. An environmental co-operation MoU was signed by the competent authorities of both countries in 2020, but its implementation was suspended in 2021.

De facto Afghanistan authorities and CSOs remain active in environmental awareness and tree-planting campaigns, but their capacities for biodiversity monitoring and conservation, especially at the cross-border scale, are limited and constrained.

Kyrgyzstan

Although Kyrgyzstan does not share a border with Afghanistan, it does share a snow leopard landscape and its mountain ecosystems are an integral part of the Mountains of Central Asia global biodiversity hotspot. Kyrgyzstan is actively promoting domestic, regional and global mountain agendas and has many interesting examples of biodiversity and forest monitoring and conservation approaches with the engagement of local

communities. The Kyrgyz Republic was the first country in the region to introduce the regulations for community-managed micro-reserves in 2022. In 2024 updates to the Kyrgyz legislation included glaciers, geo-parks and other new categories of protected areas. The OSCE can further support the implementation of this new legislation through the Aarhus Centres, public hearings and science-based approaches for the expansion of the official protected areas and other effective area-based conservation measures.

Tajikistan

Tajikistan has the highest percentage of protected areas (22 per cent) in relation to the total country area, thanks to its vast Tajik National Park (2 million ha) located in the heart of the Pamir Mountains and considered by scientists to be one of the largest wilderness areas in Central Asia — the area where the human footprint and ecosystem fragmentation are very low — and the UNESCO world heritage site.

There is also the Zorkul State Nature Reserve and hunting reserves and concessions with mountain sheep (argali), snow leopard and other species. When the situation permits, establishing or re-establishing links and co-operation with Afghanistan is desirable with regard to maintaining the ecological corridors for migratory species, and for conducting monitoring and conservation activities.

Tigrovaya Balka (*Beshai Palangon*) State Nature Reserve is located at the confluence of the Vakhsh and Panj Rivers and covers 50,000 ha. This oldest nature reserve was established in 1938 to protect riparian forests, Bukhara deer and tiger habitat, rare birds and endemic fish species. In 2023, the reserve was designated a UNESCO World Heritage Site, and the government, civil society organizations and international projects are supporting biodiversity monitoring and conservation efforts.

The Dashtijum State Nature Reserve was established in the 1980s to protect the markhor goat, urial sheep and endemic plants. Here local community-based conservancies were effective in restoring the dwindling population of the markhor, while international partners and projects supported monitoring, genetic resource conservation and climate adaptation measures.

Pistachio forests in the Karatag and Babatag Mountains in southern Tajikistan bordering Afghanistan and Uzbekistan are threatened by uncontrolled grazing and illegal tree cutting. These forests, the state nature reserves and the Darwaz and Aywaj key biodiversity areas on the Tajik-Afghan border require further attention, and when the situation permits, data exchange and co-operation with Afghanistan is desirable.

Turkmenistan

The proportion of protected areas in Turkmenistan (4 per cent) is small in relation to the country's total area, but the quality of conservation is high. The total current protected area is 2.1 million ha. Most of the country's nature reserves are located along its borders, including those near Uzbekistan and Afghanistan.

On the Amu Darya River, downstream of Turkmenabat, there is the 48,000 ha Amu Darya State Nature Reserve, where aquatic fauna, including the Amu Darya shovelnose sturgeon, and the riverine forests are protected. The Kelif and Talimarjan wetlands located upstream on the Amu Darya attract large numbers of migratory bird species, and meet the criteria for a key biodiversity area. Birdwatchers conduct monitoring and transboundary data exchange here, and the application of other effective conservation measures may help in transboundary efforts.

The 87,700 ha Badkhyz State Nature Reserve, located in southern Turkmenistan next to the borders with Iran and Afghanistan, connects three other nature refuges — Kyzyljar, Pulihatam and Chemenabyt — and together they protect rare animals (kulans, gazelles and Persian leopards), unique plants and intact pistachio forests. Cross-border co-operation may help restore badly damaged

pistachio forests in Afghanistan. The nearby Murghab River basin, shared by Afghanistan (upstream) and Turkmenistan (downstream) is an important source of water for both countries. Both climate change impacts and biodiversity pressures on this basin are considered to be high, and co-operation on adaptation and nature-based solutions is desirable.

In south-east Turkmenistan, on the border with Uzbekistan and Afghanistan, the Koytendag State Nature Reserve (27,000 ha) and the associated wildlife refuges of Karlyuk, Hojapil, Hojaburjibelent and Hojagaravul, cover an area of 100,000 ha. This area is famous for caves and underground lakes, sacred pistachio forests, dinosaur footprints, habitats of markhor and other flagship mammals, and unique fish, reptiles and plants. Although this region is quite remote (about 1,000 km from Ashgabat and densely populated areas), it has recently received many tourists following high-level visits and media coverage, leading to unusually high tourism and the associated impacts (waste, noise), in addition to disturbance from livestock grazing and climate impacts.

Located near the Afghan and Uzbek borders, the Kelif-Zeid-Talimarjan wetlands provide important habitat for migratory birds, including the endangered sociable lapwing, cranes and birds of prey. Scientists and civil society organizations are actively involved in bird watching and awareness raising.

Currently, international and local civil society organizations are supporting science and monitoring to improve the effectiveness of conservation, strengthening co-operation with Uzbekistan's Surkhan State Nature Reserve, adjacent to the Koytendag, and promoting the transboundary nomination of this key biodiversity area as a UNESCO World Heritage Site.

In spring 2024, Turkmenistan hosted a high-level meeting of the OSCE Secretary General with the environment ministers of the five Central Asian states to discuss regional challenges and opportunities for cooperation under the OSCE umbrella, and published the fourth updated edition of the National Red List of 266 animal and plant species that require attention and conservation.

Uzbekistan

In 2022, Uzbekistan significantly expanded its protected areas coverage from 6.0 per cent to 13.5 per cent of the country's total area by creating new national parks and state reserves. Previously, protected areas were managed by different state agencies and ministries. The Ministry of Ecology, Environment and Climate Change, established in 2023, aims to improve and co-ordinate the management of all state protected areas.

In southern Uzbekistan, on the border with Turkmenistan, near Afghanistan, the Surkhan State Nature Reserve covering 24,000 ha protects rare animals and plants. Pistachio and juniper forests are protected in the Uzun, Babatag, Boysun, Kyzryk and Hissar forestry units. The Gissar (Hissar) State Nature Reserve on the border with Tajikistan is one of the largest (81,000 ha) strictly protected reserves with well-preserved mountain juniper forests and alpine meadows that serve as habitats for snow leopards. The main problem for these nature reserves and forest units is overgrazing.

In the Zaravshan River Basin, shared by Tajikistan (upstream) and Uzbekistan (downstream), the Zaravshan National Park on the Uzbek side, near Samarkand, and the Zaravshan Wildlife Refuge on the Tajik side near Panjikent are stepping up experience exchange visits and information sharing as part of the bilateral co-operation MoU, and are broadening basin-wide co-operation.

Uzbekistan, as a host country and co-chair of the 14th Conference of the Parties of the Convention on Migratory Species, demonstrated its progress in conservation, including the expansion of its protected areas network. A newly established Central Asia University of Environmental and Climate Change Studies (Green University), based in Tashkent, will work with the new generation of forest and conservation professionals, and will host an IUCN subregional office to engage with Central Asian governments and CSOs and to expose them to global best practices. After the successful CMS conference, Uzbekistan intends to host the 20th COP of the CITES Convention in 2025.

China

As an important economic player and neighbour of Central Asia in the Tien Shan and Pamir Mountains, China participates in science and monitoring efforts. Further collaboration with China on environmental impact and strategic assessments of linear infrastructure and extractive projects (pipelines, railways, mines) to limit their impact on fragile ecosystems and migratory species can help ensure long-term conservation across the region. In addition, China was the co-chair lead of the Kunming-Montreal Global Biodiversity Framework and can share its experience and approach with Central Asia and Afghanistan on biodiversity actions and targets.

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Co-operation between Afghanistan and Central Asia is necessary for the protection and monitoring of endangered and migratory species such as the snow leopard, argali, markhor, Bukhara deer and others, and for landscape level conservation. Joint expeditions, regular data exchange and co-operation with border security authorities are among the essential stepping stones for transboundary conservation. The following protected and ecological areas can form the list of geographic priorities:

- **Afghanistan-Central Asia:** Amu Darya River, migratory species, forest restoration and dust storm reduction
- **Afghanistan-Tajikistan:** Wakhan Valley National Park, Zorkul State Nature Reserve, Tajik National Park, Dashtijum State Nature Reserve and Refuge, Darwaz and Lower Panj River
- **Afghanistan-Turkmenistan:** Badkhyz State Nature Reserve, Murghab River basin
- **Tajikistan-Uzbekistan:** Hissar and Babatag Mountains, Zaravshan River basin
- **Turkmenistan-Uzbekistan:** Koytendag and Surkhan Mountains with several nature reserves, Talimarjan wetlands, Amu Darya riverine forests and delta
- **Kyrgyzstan-Tajikistan-Afghanistan-China:** Pamir-Alai-Wakhan

Global biodiversity targets

1 
0 loss

2 
30% restoration

3 
30*30 land and sea


4 
Other conservation measures

5 
Sustainable harvesting and trade

6 
Invasive species

7 
Tackling pollution

9 
Inclusive benefits for people

8 
Climate and biodiversity

10 
Sustainable agriculture, aquaculture and forestry

11 
Maintain and enhance nature's contributions


12 
Green and blue urban spaces

14 
Full integration of biodiversity

13 
Genetic resources: access and benefit sharing

15 
Businesses reduce negative, increase positive impacts

16 
Responsible consumption choices

17 
Prevent adverse impacts of biotechnology

18 
Reduce harmful incentives

19 
Increase all financial resources

20 
Inclusiveness

21 
Equitable participation and decision

22 
Indigenous peoples, local communities

23 
Gender equality in implementation



Reduce threats

Meet people's needs

Solutions and mainstreaming

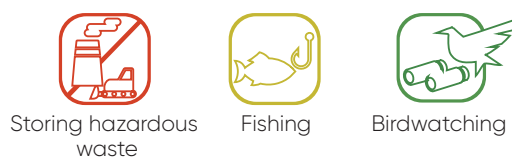
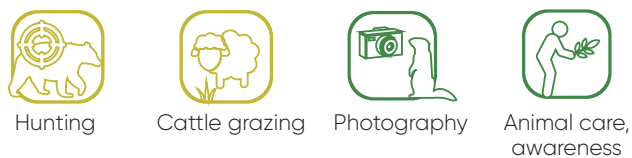
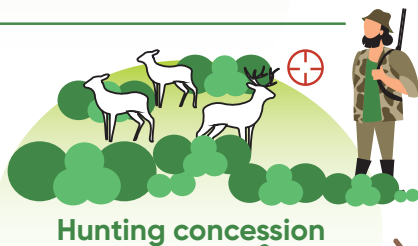
Basic categories and rules for nature conservation areas

Human activities:  Prohibited or restricted  Authorization required  Allowed or encouraged

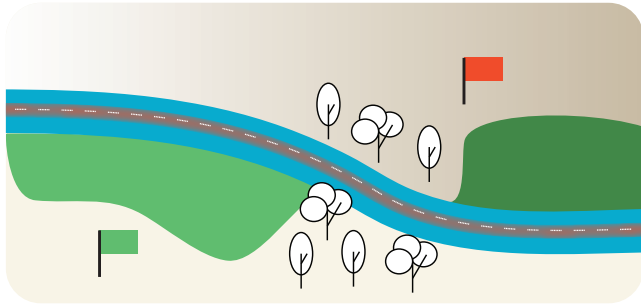
Protected areas



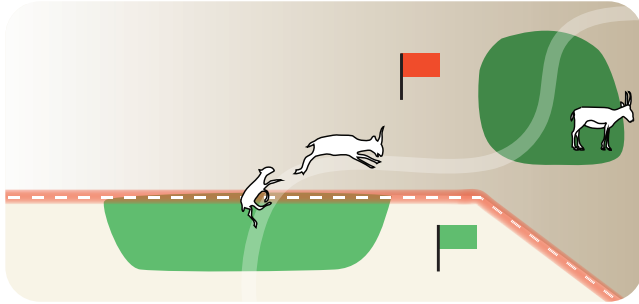
Other areas under conservation management



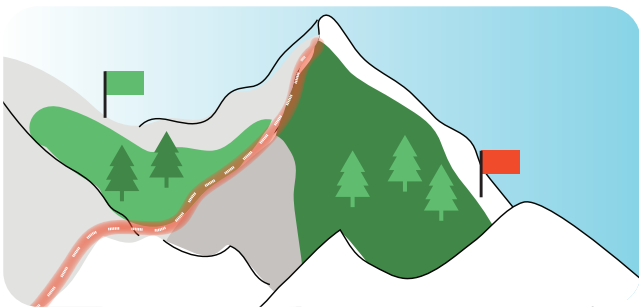
Nature knows no borders



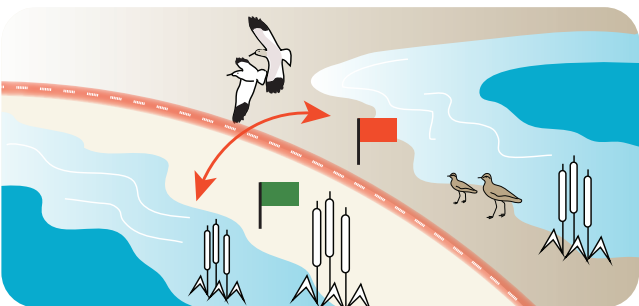
Situation 1, Typical for the Amu Darya River: The centre of the river defines the border. Nature reserves or riparian forests are close to the river, and opportunities exist for cross-border conservation, ecological corridors, and data exchange.



Situation 2, Typical for vast deserts and grasslands: Nature reserves or flagship species habitats are very close to the border, which is often fenced and creates significant barriers for migratory species. Opportunities exist for cross-border conservation, ecosystem connectivity, and monitoring.



Situation 3, Typical for mountain areas: Nature reserves or shared ecosystems are on the opposite sides of the mountains along the border. Limited co-operation and data exchange reduce conservation efficiency and create artificial barriers, but opportunities exist for cross-border conservation, ecosystem connectivity, and data sharing.



Situation 4: Wetlands and key habitats of migratory birds are located on the border or nearby. Many rivers in Central Asia flow from one country to another, creating a similar ecological situation. Co-operation on species monitoring and prevention of disturbance is crucial for conservation success.

A good practice example:

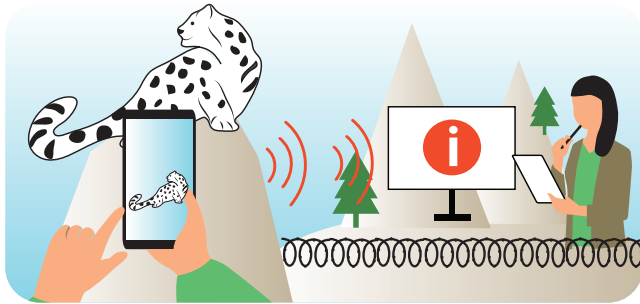
In April-May 2024, staff from the Zarafshan National Park (Uzbekistan) explored options for ecotourism potential and conducted consultations and exchange visits with the Zarafshan Wildlife Refuge (Tajikistan) as part of the GIZ-led Integrative and Climate-sensitive Land Use in Central Asia programme. The joint group of experts visited local communities bordering the protected areas and met with tour operators, border guards, local community leaders and

artisans. In June 2024, the First Lady of Uzbekistan visited the Zarafshan National Park, its riparian forest and wetland ecosystems and the Bukhara Deer nursery together with participants in the International Youth Ecological Camp. The Zamin Foundation (zaminfoundation.ngo) prepared a documentary on the negative impact of gravel extraction on the water level of Zarafshan and its ecosystem.

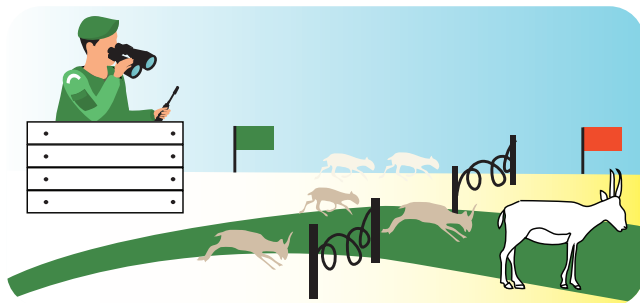
Co-operation options in the border zones



Biodiversity scientists or inspectors are allowed access to the border river or mountain range where nature reserves or critical habitats are located.



Border guards, security and customs authorities can contribute to wildlife monitoring in the border zones and prevent environmental crimes such as illegal trade or export of endangered species.



Border security authorities can participate in the opening or creation of the ecological corridors and help reduce fragmentation of migratory species habitats.



In some cases, border guards can organize joint raids or patrols with environmental inspectors to combat poaching and other illegal natural resource use in the border zones.

4. Recommendations

Governmental agencies, scientists, civil society organizations, local communities and the private sector protect the natural resources of Central Asia and Afghanistan in a variety of ways. State nature reserves and national parks are established to protect unique natural sites or species of flora and fauna, and are funded by the government. Hunting reserves or forest units could be leased to the private sector or remain in local community use. International and local projects implemented by governmental agencies or CSOs cover migratory and endangered species and the creation of nurseries along with knowledge and awareness raising. Business projects must follow Environmental Impact Assessments (EIAs) and apply safeguards not to harm nature, and some enterprises may sponsor conservation measures around their locations.

The recommendations in this report are based on the original analysis, selected suggestions from recent meetings, and on past and ongoing studies and projects.

In light of the mandate and experience of the OSCE in transboundary environmental co-operation and security in Central Asia and Afghanistan, the following measures could help improve biodiversity regulations, education, and awareness, and reduce pressures and increase conservation effectiveness. The OSCE could:

- Co-ordinate with regional partner programs (GIZ, EU, IUCN, CMS, CITES, others) on transboundary conservation solutions and capacity building, particularly in the areas of training and co-operation with border security and customs authorities, legislation revision, environmental planning
- Promote, in cooperation with the UNECE, basic knowledge of the Espoo Convention and encourage its ratification and application; support Turkmenistan in further steps to join CITES Convention
- Support Aarhus Centres in the dissemination of biodiversity knowledge in the Central Asia regions bordering

Afghanistan, and encourage civil society organizations to participate in the formulation of revised national biodiversity strategies and targets

- Promote information exchange between Central Asia and Afghanistan, when the situation permits, on matters of environmental and water management, biological, energy and climate security that contribute to biodiversity conservation
- Create attractive economic and energy alternatives to natural resource-intensive development at the local level, focusing efforts on energy security and clean energy and the exclusion of livestock grazing in forests, protected areas and other sensitive ecosystems
- Contribute to education and training of young professionals through existing regional platforms and institutions, including the OSCE Academy, CAREC, DKU and the Green University of Central Asia
- Support co-operation agreements and MoUs on migratory species and transboundary conservation areas, and between nature protection agencies to conserve migratory species and ecosystems

The EU “Larger Than Tigers” strategic approach (2018) provides the following main recommendations, which could be taken by the OSCE and other international organizations:

- Support the strengthening and expansion of protected areas with the introduction of modern monitoring and management approaches such as the Spatial Monitoring and Reporting Tool (SMART), and capacity building, including the exchange of lessons and experiences between the countries and outside the region
- Continue and broaden work to monitor and respond to the threat of disease transmission between wildlife and domestic animals (including the One Health approach)

- Reinforce action against the illegal wildlife trade, closing loopholes in the legal framework, improving the effectiveness and resourcing of enforcement, and encouraging international co-operation under conventions
- Encourage the development and further engagement of civil society in conservation action, and in science and monitoring related to priority conservation issues
- Encourage the expansion of the private sector in green-ing business practices and supporting conservation
- Inform and involve border security authorities in the transboundary conservation of ecosystems and migra-tory species through interagency meetings and joint patrols with environmental staff
- Integrate training and information on wildlife conser-vation, including training and information materials from CMS and CITES conventions, into the existing and planned capacity-building programmes for cus-toms agents and border guards

Recommendations for governments and compe-tent authorities

Strategic decision-making:

- Include provisions on transboundary co-operation on migratory species, ecological corridors and pro-ected areas in the National Biodiversity Strategies and Action Plans currently under revision
- Expand the list of protected area categories and accept the OECM approach
- Recognize Key Biodiversity Areas (KBAs) and other modern global conservation standards and catego-ries in regulations, official biodiversity targets and reporting
- Promote biodiversity financing schemes, offsets, and incentives, and encourage grants programmes that reduce pressure on migratory species, vulnerable ecosystems and eco-corridors
- Recognize the role and encourage the engagement of civil society organizations and the private sector in implementing and co-financing the revised national biodiversity targets and strategies

Conservation-friendly and accessible near-border and cross-border areas and interagency co-operation:

- Take high-level decisions on the removal of dysfunc-tional sections of border fencing that cause signifi-cant harm to migratory species but have no impact on smuggling or illegal border crossing

- Permit biodiversity monitoring in the state nature reserves located next to or within the border zones, including the use of innovative and authorized technologies
- Engage with border services to discuss fence and protective structure modifications in order to main-tain or improve ecological connectivity and create selected passages recommended by biologists to facilitate the movement of wild animals

Spatial-ecological planning, enforcement of regulations and monitoring:

- Develop, pilot and implement regulations on ecologi-cal corridors and buffer zones for protected areas and ecological connectivity in order to make protected areas more ecologically functional
- Promote and integrate the use of SMART in the man-agement of protected areas, and establish a system (responsible officials, operating procedures, tech-nology) to receive and process SMART reports from nature reserves and stakeholders
- Reduce poaching by improving surveillance and patrols, and by installing additional ranger outposts
- Enforce bans on livestock grazing inside nature reserves and national parks
- Enforce regulations and promote good practices on the sustainable collection of walnuts, almonds and pistachios and allow for natural forest regeneration and restoration in the sustainable use of forests
- Train a new generation of young professionals in botanical, zoological and biosafety studies

Awareness raising and creation of alternatives:

- Improve conditions of pastures adjacent to protected areas and provide wells or water sources for livestock adjacent to protected areas to reduce pressures from livestock inside protected areas
- Provide renewable energy sources and fodder for populations living near nature reserves to reduce pressures (cattle grazing, wood fuel collection) around and inside protected areas
- Raise awareness among local communities about the need for protection of snow leopards and mountain ungulates and support measures to reduce human-wildlife conflict (e.g. install corrals)
- Promote ecotourism opportunities and community-based conservancies that help generate income while benefiting and sustaining nature

Local authorities, communities and civil society organizations

In order to reduce the pressure on forests (wood fuel harvesting) due to energy needs and growing demands, expand the application of the following measures:

- Low-cost sun-powered greenhouses, solar stoves and driers
- Mini grids, hydropower and energy-saving lamps
- Access to natural gas and highly efficient stoves

In order to reduce the pressure on forests, grasslands and migratory species from overgrazing and livestock:

- Minimize grazing pressure on forests and wild nature based on local traditions and recommendations from scientists and practitioners
- Introduce agro-forestry and integrated and community-based forest and land use
- Keep sufficient fodder reserves

In order to maintain inclusive approach in local natural resource management and conservation:

- Work with women's groups, small entrepreneurs and mahallas for engagement in local actions on tree planting and the clean-up of community areas and water sources from plastic waste
- Promote women's education and awareness on environmental issues and clean energy sources
- Apply IUCN OECM toolkit to the areas of local importance for conservation, and submit nominations and proposals to the authorities for further confirmation and recognition

Site-specific recommendations

- Conduct inclusive transboundary environmental impact assessments (EIAs) with the elements of strategic environmental assessments (SEAs) for the Kosh-Tepa canal under construction in northern Afghanistan; engage with de facto authorities of Afghanistan on the matters of concerns for Central Asia riparian states supported by EIA/SEA findings
- Support conservation programmes and management of the Tigrovaya Balka (Beshai Palangon) state nature reserve in Tajikistan to align with the requirements for the UNESCO sites
- As the situation permits, re-establish co-operation between Tajikistan and Afghanistan in the Pamir-Wakhan-Zorkul and Dashtijum areas, including migratory species monitoring and nature-based solutions to reduce soil erosion, improve forests and stop biodiversity degradation
- Support ongoing initial co-operation between Tajikistan and Uzbekistan on Zaravshan River ecosystems and nature reserves, and the Hissar Mountain ecosystems and eco-corridor

- Support ongoing initial co-operation between Turkmenistan and Uzbekistan on the Koytendag-Surkhan mountain ecosystem and ecological connectivity between nature reserves, and in Talimarjan wetlands and eco-corridor; facilitate meetings and exchange visits
- Implement recommendations for the nomination dossier of the Koytendag-Surkhan mountain ecosystem (Turkmenistan-Uzbekistan) for the UNESCO World Heritage Site; include ecological integrity, conservation regime, grazing and tourism management
- Reduce impacts from mass and unorganized tourism on “Dinosaur Plateau” in Turkmenistan; organize patrols, especially on weekends and holidays; improve tourist awareness about the fragility of this natural monument
- Initiate co-operation among Afghanistan, Tajikistan and Uzbekistan in the upper Amu Darya and between Uzbekistan and Turkmenistan in the middle Amu Darya River basin on riverine forests and the endangered Amu Darya shovelnose sturgeon (*Pseudoscaphirhynchus kaufmanni*)
- Support ongoing initial co-operation between Turkmenistan and Uzbekistan in the lower Amu Darya River on nature reserves and riverine forests

Biosecurity in the Central Asia-Afghanistan border region

- Provide forecasts, early warnings and ecologically sound management of locusts and pests (originating in or migrating from Afghanistan to Central Asia) affecting pastures, crops and wild nature
- Conduct regular inventories and analyses of invasive species and genetically modified organisms, and improve control measures to reduce their impact on ecosystems and food security
- Raise awareness of border crossing, customs and protected area staff and local communities on biosecurity, biotechnology and illegal harvesting, trade, import, export and transfer of species and GMOs to reduce risks and impacts on wild and cultivated plants

Transboundary biodiversity monitoring and conservation in Central Asia regions bordering Afghanistan

Recommendations



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