NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN (NBSAP) FOR AFGHANISTAN

2024 – 2030





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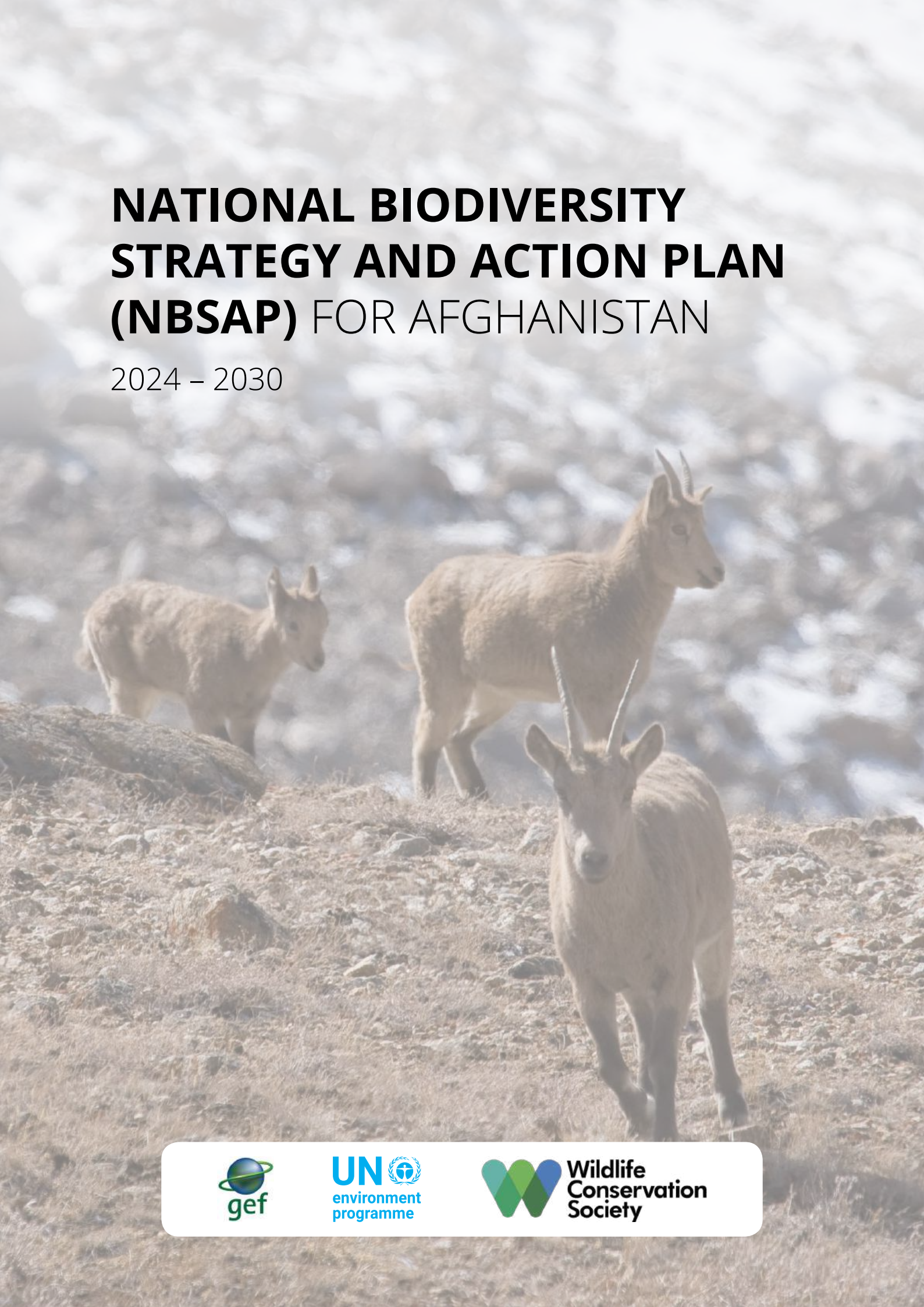

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Forward

Afghanistan's unique geographic location, distinct topography and associated climatic conditions make the country home to a great diversity of fauna and flora. Despite more than four decades of war and civil unrest, Afghanistan still harbors rich biodiversity that deserves national and international attention. Although biodiversity conservation is relatively new to the country, Afghans understand and recognize the intrinsic value of biodiversity, and the services it provides to the country. The conservation of biodiversity is therefore a national cause and must be a priority for the entire Nation.

The Islamic Emirate of Afghanistan (IEA) is also aware of the values of biodiversity as well as the benefits it provides to the Afghan people, and therefore considers the preservation of biodiversity as an important objective for Afghanistan. The IEA is committed to protecting the country's natural heritage, including Afghanistan's rich but in many cases imperiled biodiversity and will therefore take all necessary measures to protect it nationally. The National Environmental Protection Agency (NEPA) has retained under the IEA its assigned duties and responsibilities and will continue playing a pivotal role in protection of nation's biodiversity, including through proposing and supporting laws and policies for the environment, and complying with commitments made by the country to international conventions on biodiversity and the environment in light of the Islamic Sharia.

Among the important policy documents related to the protection of natural heritage is the National Biodiversity Strategy and Action Plan (NBSAP) whose revision was initiated under the previous regime, and which was completed in 2023 by NEPA with financial support from UNEP/GEF and under the technical leadership of the Wildlife Conservation Society (WCS) program in Afghanistan.

The revised NBSAP articulates conservation priorities and actions for the period 2024-2030 in Afghanistan. This comprehensive document has several objectives including providing a clear and updated strategy for the IEA that will guide the development of its future biodiversity conservation and management; communicating Afghanistan's biodiversity conservation priorities to the Convention on Biological Diversity (CBD); and defining the role of other governmental and non-governmental organizations and development partners in the conservation of biodiversity in Afghanistan. Additionally, this strategic document aligns Afghanistan's conservation programs and priorities with global needs and commitments.

NEPA management thanks UNEP and GEF for funding this project, as well as WCS Afghanistan for providing technical support from initiation to completion of the project. NEPA also appreciates the various contributions to the process made by other partners and stakeholders. NEPA leadership remains committed to ensuring that all actions and approaches articulated in this the NBSAP are implemented and looks forward to seeing all relevant partners and supporters take serious steps to achieve the biodiversity conservation targets outlined in this national document.

Sincerely Yours

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Scientific insights on climate change impact on species and ecosystems were retrieved from outputs produced by the EU-funded project "Improving participatory management and efficiency of rangeland and watershed focusing on Wakhan, Yakawlang, Kahmard and Saighan Districts, Contract ACA/2018/399-742".

The NBSAP consultation workshops were conducted between January and May 2021, and facilitated by NEPA and WCS. In addition, the Helping Hand for Women (HHW, a national NGO for the women support) also participated as supporting organization for training purpose and facilitating discussions with women and youth. Consultation workshops were mainly facilitated by Jallaluddin Naseri, Muhibullah Fazli, and their other colleagues from NEPA, Zalmai Moheb, Mujtaba Bashari, Hafizullah Rahmani, Zarifa Sabet, Rima Saleh, Naqibullah Sedeqi, Sweeta Qaderi and other colleagues from WCS, and Humaira Habibi and Zarlasht Farahi from the HHW.

Muhibullah Fazli, Kashif Sheikh and Shehzad Saleem provided advice on the religious content in the Introduction.

A three-day workshop was conducted in May 2023 where stakeholders from NEPA, MAIL, the Kabul University, the Kabul Zoo, the Ministry of National Defense, Ministry of Foreign Affairs, Bakhtar News Agency, Ministry of Mine and Petroliam, Ministry of Information and Culture, Ministry of Justice, Kabul Municipality, and Department of National Intelligence reviewed the NBSAP document and provided comprehensive recommendations and comments. NEPA hosted this workshop with WCS technical and financial support.

From the side of WCS the NBSAP revision project was led by Zalmai Moheb with assistance from Christopher Shank, Stephane Ostrowski, Richard Paley, WCS Afghanistan, and WCS Conservation Solutions teams.

Executive Summary

Afghanistan's rich natural environment is under increasing threat of degradation and loss resulting from 45 years of instability and a rapidly increasing human population. Protecting biodiversity is critical to maintaining the capability of the land to support human livelihoods and sustain ecosystem integrity.

The Government of Afghanistan ratified the Convention on Biological Diversity (CBD) in 2002 and is therefore committed to implementing the decisions of the CBD Conference of Parties (COP). The Convention requires that countries prepare a National Biodiversity Strategy and Action Plan (NBSAP), which is the principal instrument for implementing the Convention at the national level. The present plan is a revision of Afghanistan's 2014 National Biodiversity Strategy and Action Plan and provides direction for the actions that Afghanistan will undertake between 2024 and 2030 to conserve and sustainably use biodiversity and to put the country on the path to biodiversity recovery. It is intended as a practical plan of action reflecting realities in Afghanistan and capable of being fully implemented by 2030 if sufficient international financial and technical resources can be provided. The Islamic Emirate of Afghanistan will submit it to the Convention on Biological Diversity Secretariat prior to the 16th Conference of Parties in 2024.

The status of Afghanistan's biodiversity is briefly described in text, maps and tables. The core of the NBSAP is the 17 Targets and 43 associated Actions. Emphasis is placed on the means of monitoring necessary to determine the extent to which the Targets and Actions have been successfully implemented. The Targets are aligned with the Kunming-Montreal Global Biodiversity Framework but are modified to practically address the constraints of the current Afghanistan situation. Six of the Framework Targets are impractical for successful implementation within the Afghanistan context and are not included in the current revised NBSAP.

Development of the NBSAP was informed by six consultation workshops held in five regional cities in 2021 with 669 attendees. The draft NBSAP was then reviewed in detail during a three-day workshop hosted by the National Environmental Protection Agency (NEPA) in May 2023 and attended by multiple government Ministries and representatives from other relevant organizations.

While the Islamic Emirate of Afghanistan is committed to environment and biodiversity conservation, its financial resources are currently limited, therefore support for implementing the NBSAP will fall largely on the international community. The estimate for fully implementing the NBSAP by 2030 is 80 – 110 million dollars. Recognizing that biodiversity conservation, poverty alleviation and sustainable use are all interdependent, the NBSAP also proposes three development portfolios linking the NBSAP targets to the broader development agenda.

Acronyms

BII	Biodiversity Intactness Index
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species
EIA	Environmental Impact Assessment
EVI	Enhanced Vegetation Index
IUCN	International Union for the Conservation of Nature
MAIL	Ministry of Agriculture, Livestock, and Irrigation
NBSAP	National Biodiversity Strategy and Action Plan
NEPA	National Environmental Protection Agency
OECM	Other Effective Area-Based Conservation Measure
PA	Protected Area
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WCS	Wildlife Conservation Society
WDPA	World Database on Protected Areas
WWF	World Wildlife Fund

Technical Glossary

Afghanistan Wildlife Executive Committee	Technical committee determining status of Afghanistan species.
Agricultural Diversity	Variation in species and genotypes of agricultural plants and animals.
Amphibians	Cold-blooded vertebrate with aquatic larvae and adults that are semi-terrestrial. For example, frogs, toads, salamanders.
Biodiversity	The variety of all living species, including plants, animals, bacteria, and fungi.
Biodiversity Intactness Index	Average abundance of species in a location as a percentage of the original species present.
Biotechnology	The use of an organism or part of an organism to create a product or process.
Blue Spaces	Land areas near bodies of water.
Climate Change	Long-term shift in global or regional climate patterns.
Digital Sequence Information on Genetic Resources	No agreed definition. Refers generally to digitally stored data on nucleotide sequences in DNA and RNA.
Ecological Integrity	Generally, an ecosystem that retains all of its original components, usually species.
Ecology	Science of the relationships between organisms and their environments.
Ecoregion	Relatively large land units containing a unique assemblage of natural communities and species.
Ecosystem	Complex of living organisms, their physical environment, and all their interrelationships in a particular unit of space.
Ecosystem Function	Biological, geochemical, and physical processes that take place or occur within an ecosystem
Endemic Species	Species whose geographic range or distribution is confined to a single given area.
Free, Prior Informed Consent	Principle stating that indigenous or local people must consent to any project or activities that affects them or their territories.
Fungi	Distinct group of organisms comprised of yeasts, molds, smuts, mushrooms, and toadstools. Different from plants.
Genes	Unit of heredity; a segment of DNA or RNA that is transmitted from one generation to the next, and that carries genetic information such as the sequence of amino acids for a protein.
Genetic Diversity	Measure of variation in the genes of a population.
Genetic Resources	Genetic material of actual or potential value.
Genotype	Organism's complete set of genetic material.

Green Spaces	No agreed definition. Generally, refers to areas with natural vegetation such as trees and grass.
Human Footprint	Quantitative measure of human influence on ecosystems.
Indicator	A measurement signifying status or change in a system.
Kunming-Montreal Global Biodiversity Framework	Plan agreed in 2022 by Parties to the Convention on Biological Diversity to conserve and restore global biodiversity by 2050.
National Biodiversity Strategy and Action Plan	National plan to identify threats to biodiversity and determine actions to be undertaken to conserve and restore biodiversity.
National Protected Area Systems Plan	Design of a reserve system to protect the full range of ecosystems and communities found in a particular country.
Other Effective Area-based Conservation Measures	A geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in situ conservation of biodiversity with associated ecosystem functions and services and where applicable, cultural, spiritual, socio–economic, and other locally relevant values.
Overexploitation	Harvesting plants and animals at a greater rate than they can reproduce.
Protected Areas	Clearly defined geographical spaces, recognised, dedicated, and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.
Resilience	Ability of an ecosystem and/or living beings to maintain their normal functions after being subjected to damage caused by an ecological disturbance.
Species Diversity	Number of different species in a particular area weighted by the abundance of each species.
Species Richness	Number of species in a particular area.
Sustainability	"Meeting the needs of the present without compromising the ability of future generations to meet their own needs."
Threatened Species	A species close to global extinction.
Traditional Knowledge	Knowledge systems embedded in the cultural traditions of regional, indigenous, or local communities. Non-scientific knowledge.
Wetland	Land that is covered or saturated with water. For example, shallow lakes, swamps, bogs.
Wildlife	Living beings that are not human or domesticated, existing in their natural environment. Often restricted to vertebrate species.

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Table of Contents

Forward i

Acknowledgments ii

EXECUTIVE SUMMARY iii

ACRONYMS iv

TECHNICAL GLOSSARY v

[1] INTRODUCTION 1

[2] AFGHANISTAN'S BIODIVERSITY 3

Genetic diversity 4

Species Diversity 5

Ecosystem diversity 8

Major Threats to Afghanistan's Biodiversity 12

Threatened Species 17

Agricultural Diversity 17

Protected Areas 18

[3] CONSULTATION WITH STAKEHOLDERS 21

[4] THE KUNMING-MONTREAL GLOBAL BIODIVERSITY FRAMEWORK 24

[5] AFGHANISTAN CONSERVATION TARGETS, ACTIONS, AND INDICATORS 27

REDUCING THREATS TO BIODIVERSITY 29

TARGE T 1. Afghanistan will undertake biodiversity-inclusive land-use planning in all protected areas. 29

TARGET 2. Afghanistan will restore degraded habitat in protected areas. 29

TARGET 3. Afghanistan will ensure that at least 10% of the country is in protected areas. 30

TARGET 4. Afghanistan will maintain population numbers of targeted species. 31

TARGET 5. Afghanistan will ensure that the harvesting, trade and use of wild species is sustainable and legal. 31

TARGET 6. Eliminate, minimize, reduce and or mitigate the impacts of invasive alien species on biodiversity and ecosystem services. 32

TARGET 7. Reduce pollution risks and the negative impact of pollution from all sources. *Afghanistan will not address Target 7.* 32

TARGET 8. Afghanistan will minimize the impact of climate change on biodiversity. 32

MEETING PEOPLE'S NEEDS THROUGH SUSTAINABLE USE AND BENEFIT-SHARING 32

TARGET 9. Afghanistan will Ensure benefits, including nutrition, food security, medicines, and livelihoods. 32

TARGET 10. Afghanistan will ensure all agricultural area are managed sustainably. 33

TARGET 11. Restore, maintain and enhance nature's contributions to people.
Afghanistan will not address Target 11. 33

TARGET 12. Afghanistan will Increase the area of, access to, and benefits from green and blue spaces. 33

TARGET 13. Ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources. 32

TOOLS AND SOLUTIONS FOR IMPLEMENTATION AND MAINSTREAMING **33**

TARGET 14. Afghanistan will fully integrate biodiversity conservation into policies. 33

TARGET 15. Ensure that national and transnational businesses and financial institutions monitor and disclose their impacts on biodiversity. 34

TARGET 16. Ensure that people are encouraged and enabled to make sustainable consumption. 34

TARGET 17. Establish, strengthen capacity for, and implement in all countries, biosafety measures for the handling of biotechnology and distribution of its benefits.
Afghanistan will not address Target 17. 34

TARGET 18. Eliminate, phase out or reform incentives.
Afghanistan will not address Target 18. 34

TARGET 19. Afghanistan will seek to increase the level of financial resources substantially. 34

TARGET 20. Afghansitan will seek to Strengthen capacity-building and development. 35

TARGET 21. Afghanistan will ensure that the knowledge base, both scientific and traditional, necessary for the management. 35

TARGET 22. Afghanistan will Ensure the full, equitable, inclusive, effective representation and participation in decision-making by local communities. 35

TARGET 23. Ensure gender equality in the implementation of the National Biodiversity Strategy and Action Plan.
Afghanistan will not address Target 23. 35

[6] INTEGRATING BIODIVERSITY CONSERVATION, POVERTY ALLEVIATION AND SUSTAINABLE USE **36**

ANNEXES

ANNEX 1. Summary of Goals, Targets, Headline Indicators Actions, Action Indicators, Responsibilities, and Completion Dates. 41

ANNEX 2. Summary of stakeholders' consultations carried out between January and May 2021 54

ANNEX 3. Global status of Afghanistan species listed by the IUCN Red List. 60

ANNEX 4. Status of priority species to be considered for conservation action (Target 4) 64

ANNEX 5. Protected species list of Afghanistan designated by the National Environmental Protection Agency 71

ANNEX 6. List of alien species in afghanistan 77

List of Figures

Figure 1. Timeline for revised NBSAP initiation, development, approval and submission. 2

Figure 2. Afghanistan's relative species richness. 7

Figure 3. Global status and geographical distribution of Afghanistan ecoregions. 9

Figure 4. Afghanistan land cover in 2020 at 10m resolution. 10

Figure 5. Afghanistan's vegetation productivity. 11

Figure 6. Comparison of Afghanistan's yearly plant productivity. 11

Figure 7. Afghanistan population density (per 0.01 km^2) in 2020. 12

Figure 8. Afghanistan's human footprint in 2013. 13

Figure 9. Afghanistan's Biodiversity Intactness Index in 2015. 13

Figure 10. Change in Afghanistan's Biodiversity Intactness Index (BII) between 2000 and 2015. 14

Figure 11. Modeling of priority protected areas for Afghanistan with provincial and district boundaries. 20

List of Tables

Table 1. Number of Afghanistan species in major taxa. 6

Table 2. Area and global status of 17 Afghanistan Ecoregions. 8

Table 3. Adherence to official protected area criteria by the nine protected areas declared by NEPA. 19

1 INTRODUCTION

Islam affirms that Allah is the Creator, the Maker, the Giver of Form (Qur'an 59:24) and has perfected everything He has created (Qur'an 32:7). Living beings were created to reflect the glory of their Creator. Qur'an 6:38 reminds us that human beings are an integral part of nature just as are all living beings. The Surah-ar-Rahman 55:2 to 55:10 teaches that Allah created the universe and everything in it in a finely tuned balance that humans must not upset through unjust actions. Therefore, Afghanistan should consider it as a priority to protect the country's species and ecosystems and to use these living resources sustainably now and in the future.

The variety of all living species, including plants, animals, bacteria, and fungi is collectively referred to as biodiversity. A broad range of species act together to provide and sustain everything in nature needed to sustain life. However, humans are now utilizing these living resources faster than they can be renewed leading to loss of species and disruption of the delicate balance of nature.

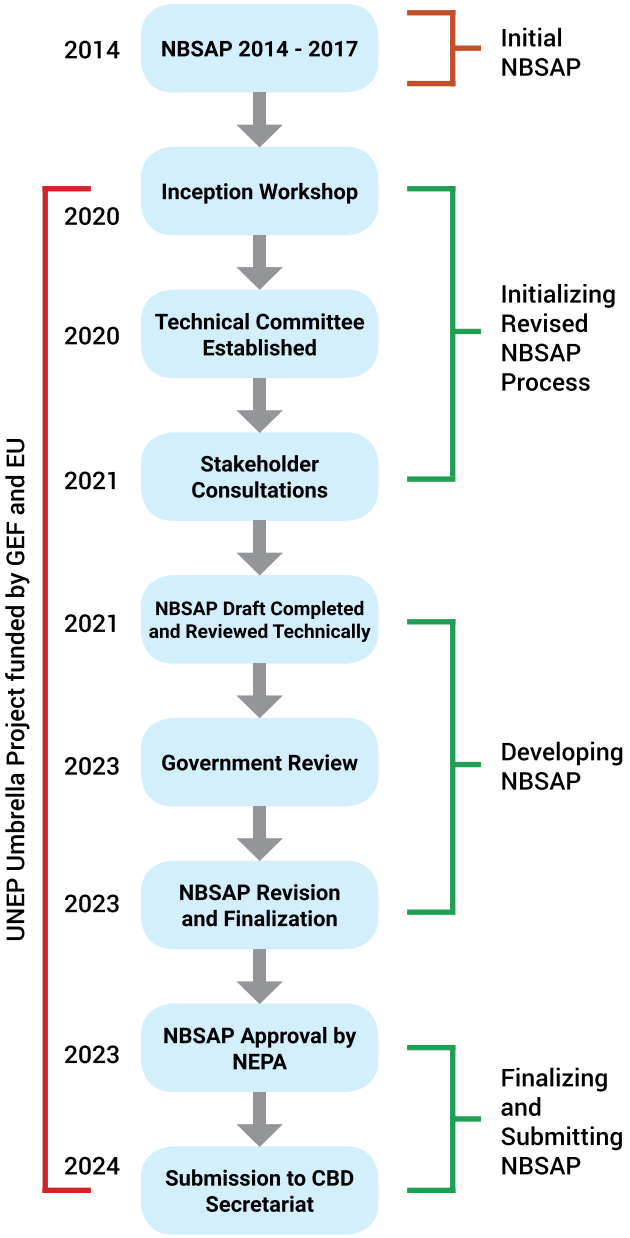

Figure 1. Timeline for revised NBSAP initiation, development, approval, and submission.

Recognizing the catastrophic loss of species and the resulting erosion of ecological integrity, the Convention on Biological Diversity (CBD) was instituted in 1992 to provide global leadership and promote cooperation in the conservation of biodiversity and the sustainable use of its components. Afghanistan became a signatory and party to the CBD in 2002. Article 6 of the CBD commits parties to developing national strategies, plans or programmes for the conservation and sustainable use of biological diversity.

In 2014, Afghanistan developed the country's first National Biodiversity Strategy and Action Plan (NBSAP) based on the Aichi Targets approved by the CBD in 2011. Article 36(2) of the Environment Law (2007) states that measures identified in the NBSAP will be included in national development planning and that the NBSAP will be updated not less than every five years.

This Plan updates the 2014 NBSAP for the years 2024 – 2030 based on the 23 global targets specified and approved by the Kunming-Montreal Biodiversity Framework adopted by CBD CoP-15 in December 2022. The NBSAP updating process has been illustrated in Figure 1. It provides direction for how Afghanistan will take immediate action to conserve and sustainably use biodiversity and put the country's biodiversity on a path to recovery by 2030 for the benefit of the Afghanistan environment and people. It reflects the realities of biodiversity conservation, its limited financial resources, and recent changes in government structures, institutions, and priorities. It is in accordance with the values and policies of the Islamic Emirate of Afghanistan.

2 AFGHANISTAN'S BIODIVERSITY

BIODIVERSITY DEFINITION

Biodiversity is the extraordinary variety of life in all its forms—from genes, to species, to ecosystems. All elements of biodiversity interact together in a complex, interacting web creating the environments that all species, including humans, depend upon for their existence.

GENETIC DIVERSITY

Genes are substances in the bodies of all living things containing the information used to create the vast variety of life forms we see in nature. Genes determine the differences between species, the colour of our eyes, the hardiness of wheat, differences in breeds of sheep and all the variety we see in life. Maintaining large genetic differences within a species is important because it provides the flexibility to adapt to changing conditions. Genetic diversity is recognized as an essential element of successful agriculture allowing crops to respond to threats from disease and changing environmental conditions.

Unfortunately, we know very little about genetic diversity in Afghanistan's wild species. Genetic diversity tends to decline in small and decreasing populations, so it is particularly important to better understand genetic diversity in threatened species.


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SPECIES DIVERSITY

Species diversity is the most easily understood aspect of biodiversity. At its simplest, it is just the number of species that can be found in a given area, often called "species richness".

As a largely arid, mid-latitude, mountainous country, Afghanistan is not a species-rich country and has not been considered as a global biodiversity hotspot[1]. However, there have been recent suggestions that because there has been so little research, the country may harbour a number of hidden species and considerable genetic diversity[2]. The extreme northeast of Afghanistan is included in the Critical Ecosystem Partnership Fund's "Mountains of Central Asia Biodiversity Hotspot"[3]. Afghanistan has a wide variety of ecoregions varying from high-altitude mountains to xeric deserts to monsoon forests resulting in a diversity of organisms with specialized adaptations. Table 1 summarizes what is known about Afghanistan's species richness and indicates the number of species listed as protected by the Afghanistan Wildlife Executive Committee (AWEC). Afghanistan is home to very few amphibians and many reptile species. There are numerous species of vascular plants, many of which are found nowhere else in the world (i.e., are endemic). The number of less conspicuous species, such as insects and fungi, can only be estimated.

1. https://postconflict.unep.ch/publications/afg_tech/theme_02/afg_biodiv.pdf
2. Jablonski et al. 2021. Biodiversity research in a changing Afghanistan. Science 372(6549):1402.
3. https://www.cepf.net/sites/default/files/mountains-central-asia-ecosystem-profile-eng.pdf

Table 1. Number of Afghanistan species in major taxa.

	Native Species[4]	Uncertain	Extinct	Estimates	Endemics	Source	Protected in Afghanistan by AWEC Listing
Mammals	140	12	5	-	0	IUCN Red List[5]	76
Birds	448	45	-	-	1 (semi)	S. Ostrowski/ WCS bird database, 2021	57
Reptiles	107	0	?	-	6	Wagner *et al.* 2016[6]	4
Amphibians	11	0	?	-	1	Ibid.	1
Fish	85	-	-	-	8	Coad (2015)[7]	2
Arthropods	-	-	-	10s of 1,000s	?	None	1
Vascular Plants	-	-	-	≈5,000	≈1,500	Breckle (2007)[8]	8
Fungi	-	-	-	Millions?	?	Bing Wu, *et. al.* (2019)[9]	0

4. Including extinct and endemic species
5. https://www.iucnredlist.org
6. Wagner, P., A. M. Bauer, A. E. Leviton, T. M. Wilms, and W. Böhme. 2016. A Checklist of the Amphibians and Reptiles of Afghanistan. Proc. Calif. Acad. Sci. 4 Ser. 643:457-565.
7. Coad, B. W. 2015. Native fish biodiversity in Afghanistan. Iranian Journal of Ichthyology 2:227-234.
8. Breckle, S. W. 2007. Flora and vegetation of Afghanistan. Basic and Applied Dryland Research 1,2:155-194.
9. Bing Wu, et. al. 2019. Current insights into fungal species diversity and perspective on naming the environmental DNA sequences of fungi. Mycology.10:3, 127-140, DOI: 10.1080/21501203.2019.1614106

Figure 2 depicts the relative number of species in major plant and animal species throughout Afghanistan. Dry areas in Faryab, Nimroz, Helmand and Kandahar have the lowest species richness while the eastern forests of Nuristan, Kunar, Nangahar, Paktiya and Khost have the most species.

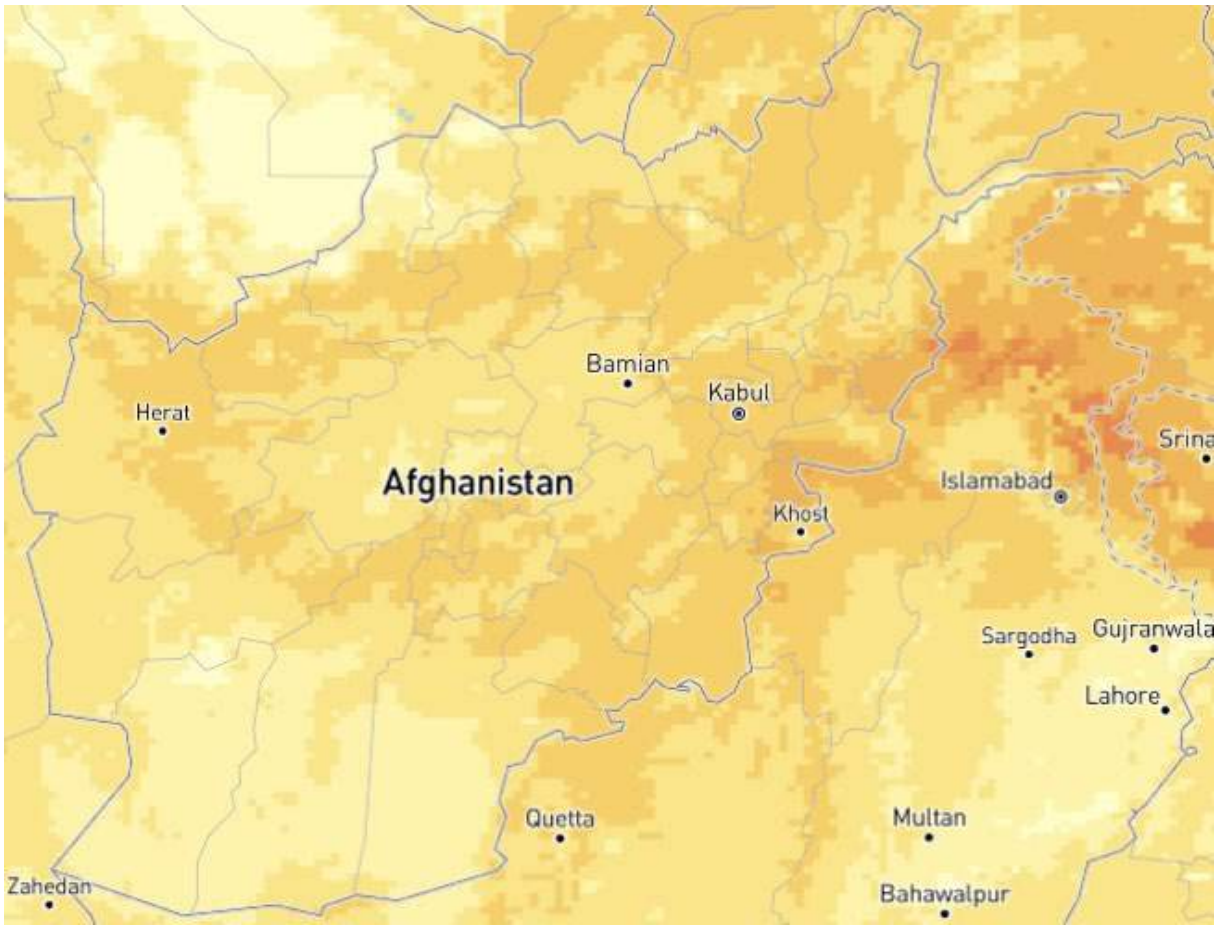

Figure 2. Afghanistan's relative species richness[10]. This represents the number of species of amphibians, birds, mammals, reptiles and a representative set of plant taxa whose distribution overlaps in each 10 km cell. Darker cells represent greater species richness on a dimensionless scale. Screenshot from UN Biodiversity Lab[11], November 2021.

10. Screenshot by Chris Shank from https://explorer.naturemap.earth/map. November, 2021.
11. https://unbiodiversitylab.org
12. Olson, D. M., E. Dinerstein, E. D. Wikramanayake, N. D. Burgess, G. V. N. Powell, E. C. Underwood, J. A. D'amico, I. Itoua, H. E. Strand, and J. C. Morrison. 2001. Terrestrial Ecoregions of the World: A New Map of Life on Earth: A new global map of terrestrial ecoregions provides an innovative tool for conserving biodiversity. BioScience 51:933-938.
13. https://assessments.iucnrle.org

Ecosystem Diversity

Ecoregions are relatively large land units containing a unique assemblage of natural communities and species. The World Wildlife Fund (WWF) classified the world into 867 terrestrial ecoregions of which 17 occur in Afghanistan[12]. Of these, not including Rock/Ice, two are considered Stable/Intact (1.0% of country area), nine are Vulnerable (60.5% of country) and five are Critical/Endangered (37.6% of country) (Table 2 and Figure 3). To date, there have been no Afghanistan assessments under the IUCN Red List of Ecosystems criteria[13].

Table 2. Area and Global Status of 17 Afghanistan WWF Ecoregions[14].

Biome	Ecoregion "Zip-Code"	Ecoregion Name	Area in km² (% of country)	Global Status
Temperate Coniferous Forests				
	PA0506	East Afghan Montane Conifer Forests	12,749 (2.0%)	Vulnerable
	IM0502	Western Himalayan subalpine conifer forests	248 (<0.1%)	Vulnerable
Temperate Grasslands, Savannahs and Shrublands				
	PA 0808	Gissaro-Alai Open Woodlands (minor occurrence in Afghanistan)	3,658 (0.6%)	Critical/ Endangered
Montane Grasslands and Shrublands				
	PA1006	Karakoram-West Tibetan Plateau Alpine Steppe	4,973 (0.8%)	Vulnerable
	PA 1014	Pamir Alpine Desert and Tundra	5,020 (0.8%)	Vulnerable
	PA 1005	Hindu Kush Alpine Meadow	28,260 (4.4%)	Vulnerable
	PA 1004	Ghorat-Hazarajat Alpine Meadow	66,560 (10.3%)	Vulnerable
	PA 1012	Northwestern Himalayan Alpine Shrub and Meadows	1,770 (0.3%)	Relatively Stable/ Intact
	PA 1018	Sulaiman Range Alpine Meadows	4,873 (0.8%)	Stable/Intact
Deserts and Xeric Shrublands				
	PA1307	Baluchistan Xeric Woodlands	34,358 (5.3%)	Critical/ Endangered
	PA 1309	Central Afghan Mountains Xeric Woodlands	139,693 (21.6%)	Critical/ Endangered
	PA 1301	Afghan Mountains Semi-Desert	13,689 (2.1%)	Critical/ Endangered
	PA 1306	Badkhiz-Karabil Semi-Desert	53,930 (8.3%)	Critical/ Endangered
	PA 1313	Central Persian Desert Basins	23,079 (3.6%)	Vulnerable
	PA 1326	Registan-North Pakistan Sandy Desert	161,346 (24.9%)	Vulnerable
	PA 1322	Paropamisus Xeric Woodlands	92,521 (14.3%)	Vulnerable
		Rock and Ice	854 (0.1%)	

14. https://www.worldwildlife.org/biomes

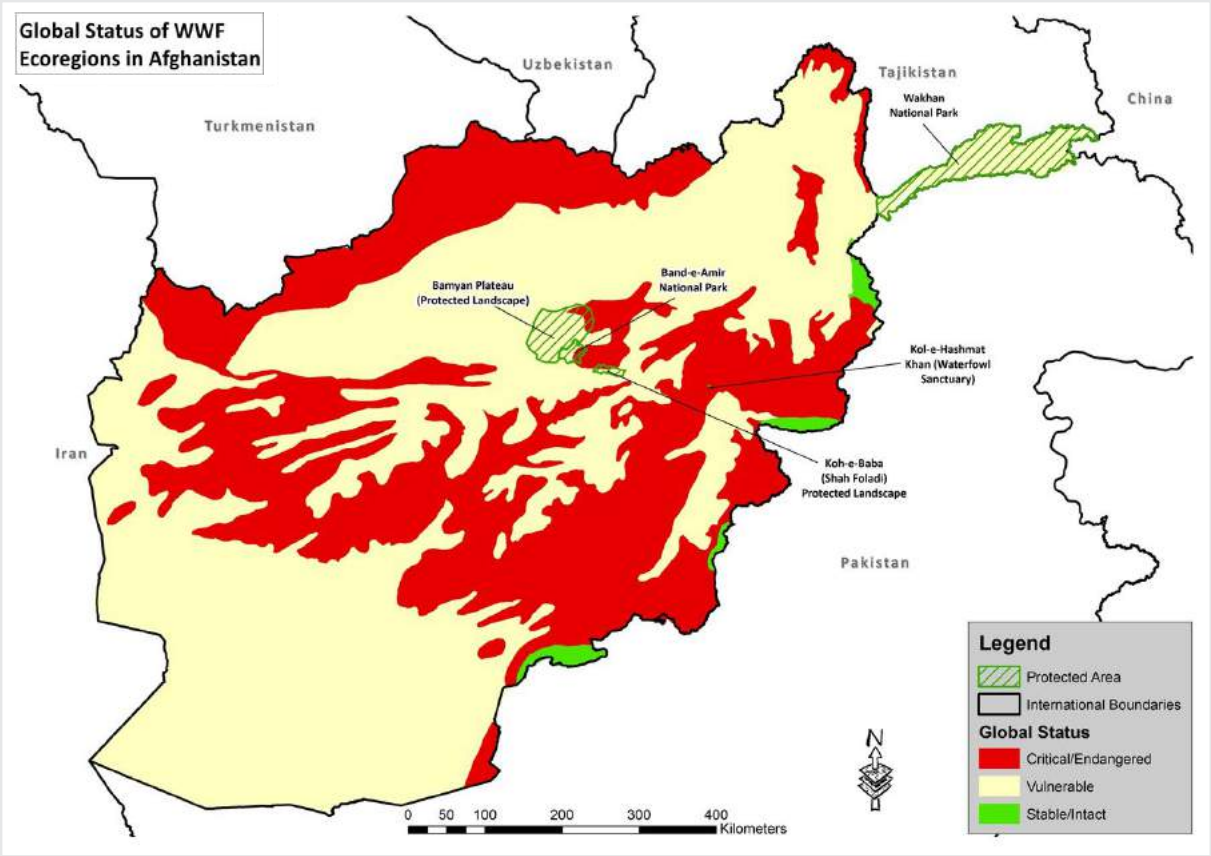

Figure 3. Global status and geographical distribution of Afghanistan ecoregions. The locations of protected areas declared prior to 2020 are also shown.

Figure 4 indicates that most of Afghanistan's land cover can be classified as "scrub" defined as a "mix of small clusters of plants or single plants dispersed on a landscape that shows exposed soil or rock…". Other classifications characterize most of the scrub area in Figure 4 as "grasslands". Croplands are concentrated around major urban areas while much of the mountainous and dry areas are bare ground. The distribution of closed deciduous and coniferous forest was probably always limited to the eastern part of the country where the Indian monsoon provides summer rain. It is estimated that in the 1970s there were about 3,600 km^2 of eastern forest[15] or 1.0% of the country. In 2018, the extent of tree cover (>30% cover threshold) was only 718 km^2 or 0.1% of the country, a loss of about 2,900 km^2 since the 1970s and 1,345 km^2 since 2000[16].

15. Sayer, J. A., and A. P. M. Van der Zon. 1981. National Parks and Wildlife Conservation, Afghanistan. A Contribution to a Conservation Strategy. 2 vols., 107 and 153 pp., 25 maps. Technical Report, Rome: FAO.
16. https://rainforests.mongabay.com/deforestation/archive/Afghanistan.htm (data from Global Forest Watch)

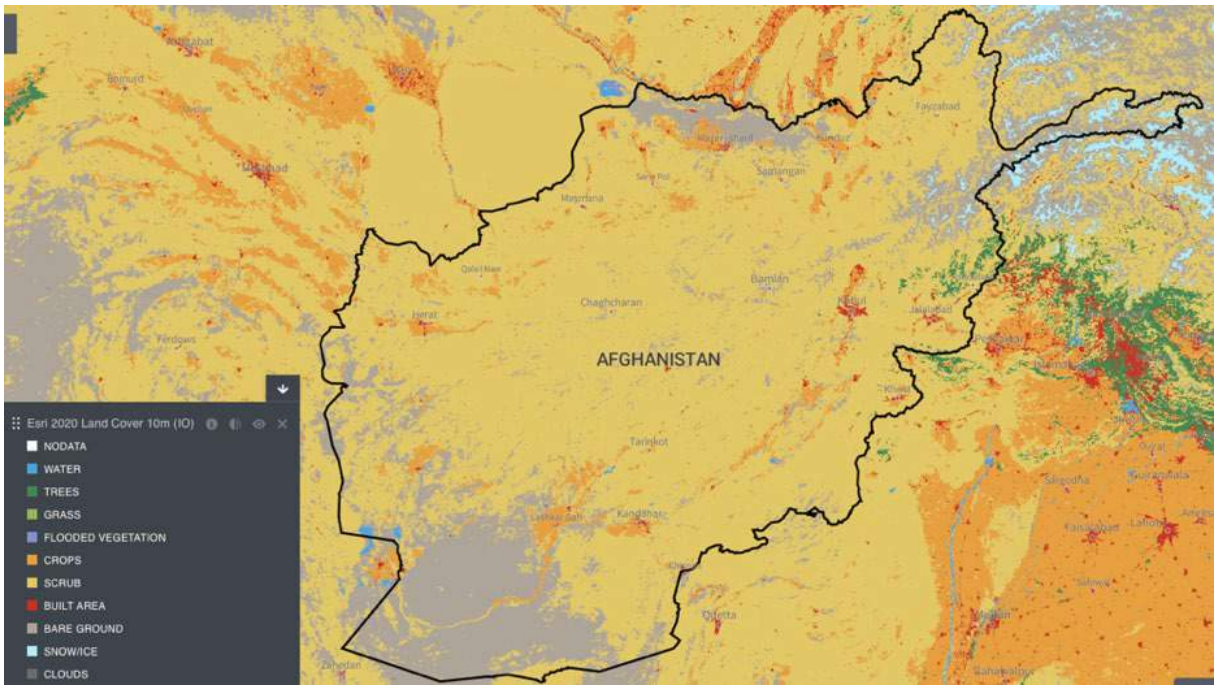

Figure 4. Afghanistan land cover in 2020 at 10 m resolution (Karra et al. 2021)[17]. Screenshot from UN Biodiversity Lab[18], November 2021.

Afghanistan is an arid country with very few wetlands. The Biodiversity Assessment of Afghanistan[19] lists the locations of 21 significant wetlands but suggests there are likely to be more. In arid countries wetlands are crucial habitats for breeding and migrating birds. They are also critical for aquatic plants, many invertebrate species, fish and amphibians. It is not possible to indicate total wetland area in Afghanistan because the extent of many is dependent on seasonal water availability. Protecting and restoring Afghanistan's wetlands is critical to maintaining the country's biodiversity.

The productivity of Afghanistan's vegetation, that is the amount of photosynthetic activity, is profoundly influenced by interannual variation in precipitation. Over the entire country, plant productivity, as indicated by NASA's MODIS-derived (250 m) Enhanced Vegetation Index (EVI)[20], shows no significant trend since the end of the 1996 – 2001 drought despite very large between-year variability in productivity (Figure 5). Figure 6A shows the EVI in 2000 near the end of the prolonged drought of 1996 – 2001. The darker colour indicates sparser vegetation and lower productivity. Figure 6B shows the EVI in 2019 in a year of normal precipitation. The lighter colour and greener areas indicate more plant productivity. Climate change is expected to result in more drought conditions resulting in less vegetation productivity and significant ecosystem change[21].

17. Karra et al. 2021. "Global land use/land cover with Sentinel-2 and deep learning." IGARSS 2021-2021 IEEE International Geoscience and Remote Sensing Symposium. IEEE, 2021
18. https://unbiodiversitylab.org
19. https://postconflict.unep.ch/publications/afg_tech/theme_02/afg_biodiv.pdf
20. UN Biodiversity Lab, methodology from Clinton 2016. "Time Series Analysis in Earth Engine" url: https://docs.google.com/presentation/d/1J1rUtf-bkfaJwYJY-tU17kzKI4U8FnF7Q2_VWqWdaak/edit#slide=id.g4954714e1_18
21. World Bank Group and Asia Development Bank. 2021. Climate Risk Country Profile: Afghanistan.

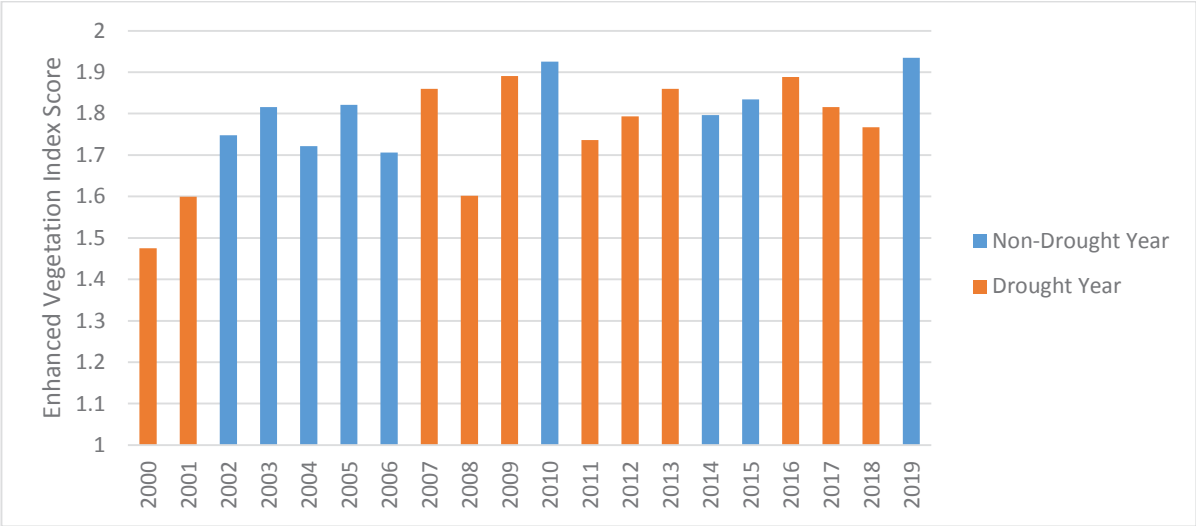

Figure 5. Afghanistan's vegetation productivity (Enhanced Vegetation Index) from 2000 to 2019 showing differences between drought[22] and normal years (Clinton 2016) [23]. Data from UN Biodiversity Lab[24], November 2021.

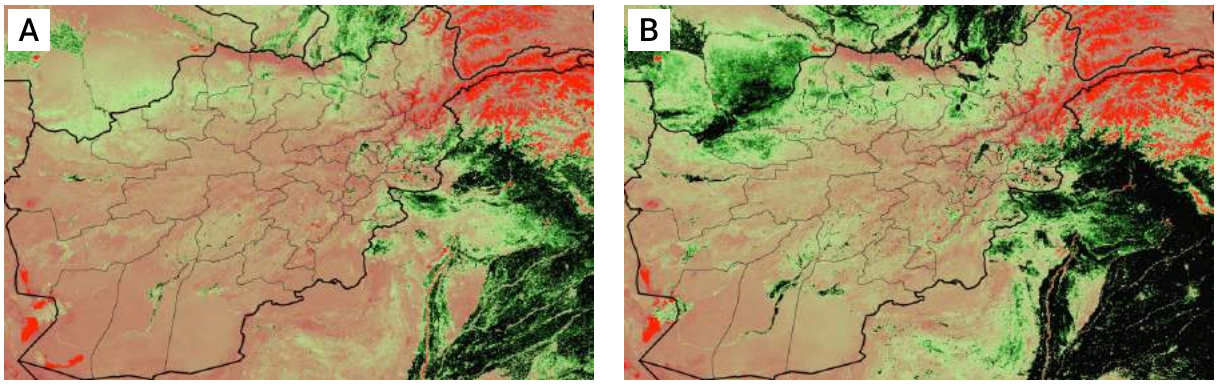

Figure 6. Comparison of Afghanistan's yearly plant productivity (Enhanced Vegetation Index) in the drought year of 2000 (A) and 2019 (B), a year of normal precipitation[25] (Clinton 2016). Weekly data are integrated for the year. Dark brown = lower plant productivity, dark green = higher plant productivity, red = water/snow/rock. Data from UN Biodiversity Lab[26], November 2021.

22. Drought years from https://www.afghanistan-analysts.org/en/reports/economy-development-environment/droughts-on-the-horizon-can-afghanistan-manage-this-risk/
23. Clinton, N. 2016. "Time Series Analysis in Earth Engine" url: https://docs.google.com/presentation/d/1J1rUtf-bkfaJwYJY-tU17kzKI4U8FnF7Q2_VWqWdaak/edit#slide=id.g4954714e1_18
24. https://unbiodiversitylab.org
25. Clinton, N. 2016. "Time Series Analysis in Earth Engine" url: https://docs.google.com/presentation/d/1J1rUtf-bkfaJwYJY-tU17kzKI4U8FnF7Q2_VWqWdaak/edit#slide=id.g4954714e1_18
26. https://unbiodiversitylab.org

MAJOR THREATS TO AFGHANISTAN BIODIVERSITY

The three major threats to Afghanistan's biodiversity are loss and degradation of natural ecosystems, the effects of climate change and overexploitation of living resources. Lesser, but still significant, threats are environmental pollution, invasive species, the diversion and unsustainable use of water, and the loss of genetic diversity in wild and domesticated species. Afghanistan's 45 years of instability and rapidly increasing human population have amplified each of these threats.

According to World Bank the Afghanistan's population has increased from 9 million in 1960 to 40 million in 2021[27], however, the National Statistics and Information Authority (NSIA) has reported a population of 34.3 million in 2022[28]. Figure 7 shows the lowest population density is in the mountain highlands (> ca. 3,500 m asl), Paktika and the southwestern deserts. Figure 8 shows Afghanistan's human footprint in 2013. The human footprint is comprised of human infrastructure (buildings, roads, etc.), human population density and croplands. The human footprint is least in Wakhan, upper Panjshir, northern Nuristan, Paktika and in the south/west provinces, and is the greatest across the northern provinces, and around large urban areas throughout the country such as in the Kabul-Jalalabad corridor.

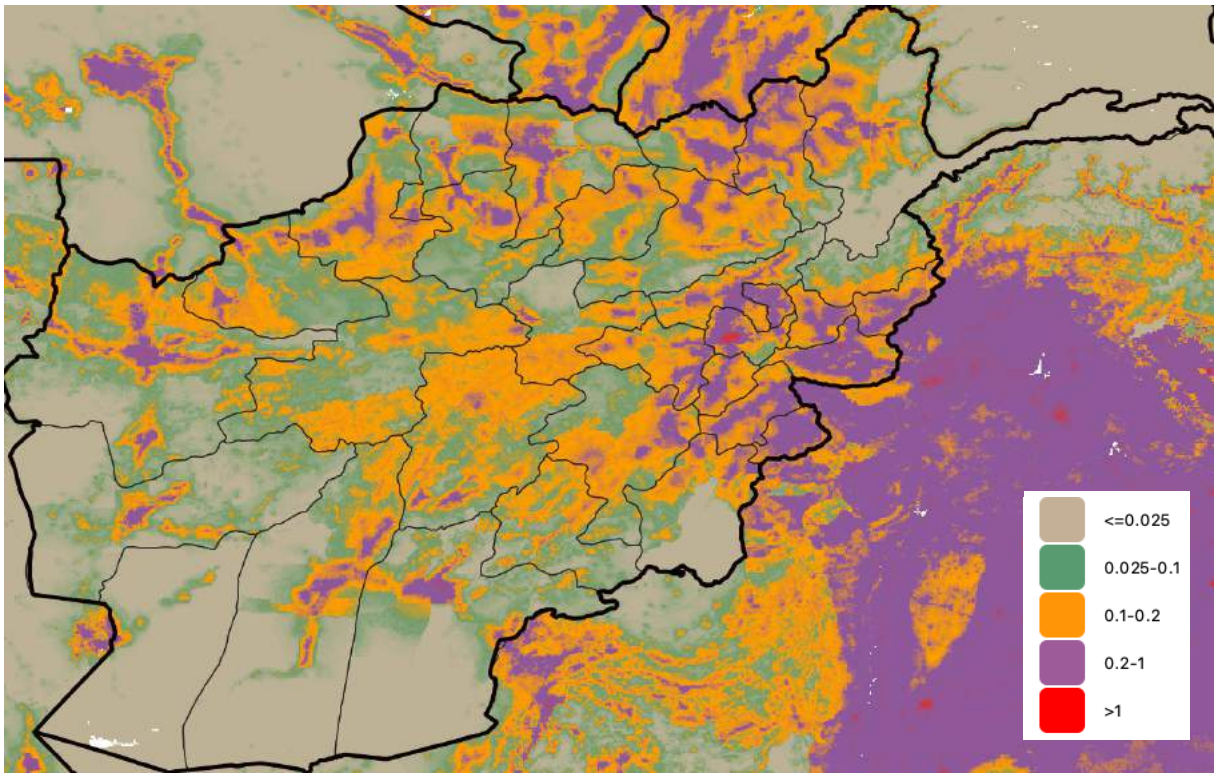

Figure 7. Afghanistan population density (per 0.01 km^2) in 2020 (0.025 = fewer than 2.5 persons per km^2; >1= more than 100 person per km^2). Data from UN Biodiversity Lab[29], December 2021.

27. https://data.worldbank.org/country/AF
28. NSIA 2022. Estimated Population of Afghanistan 2022-2023
29. https://unbiodiversitylab.org

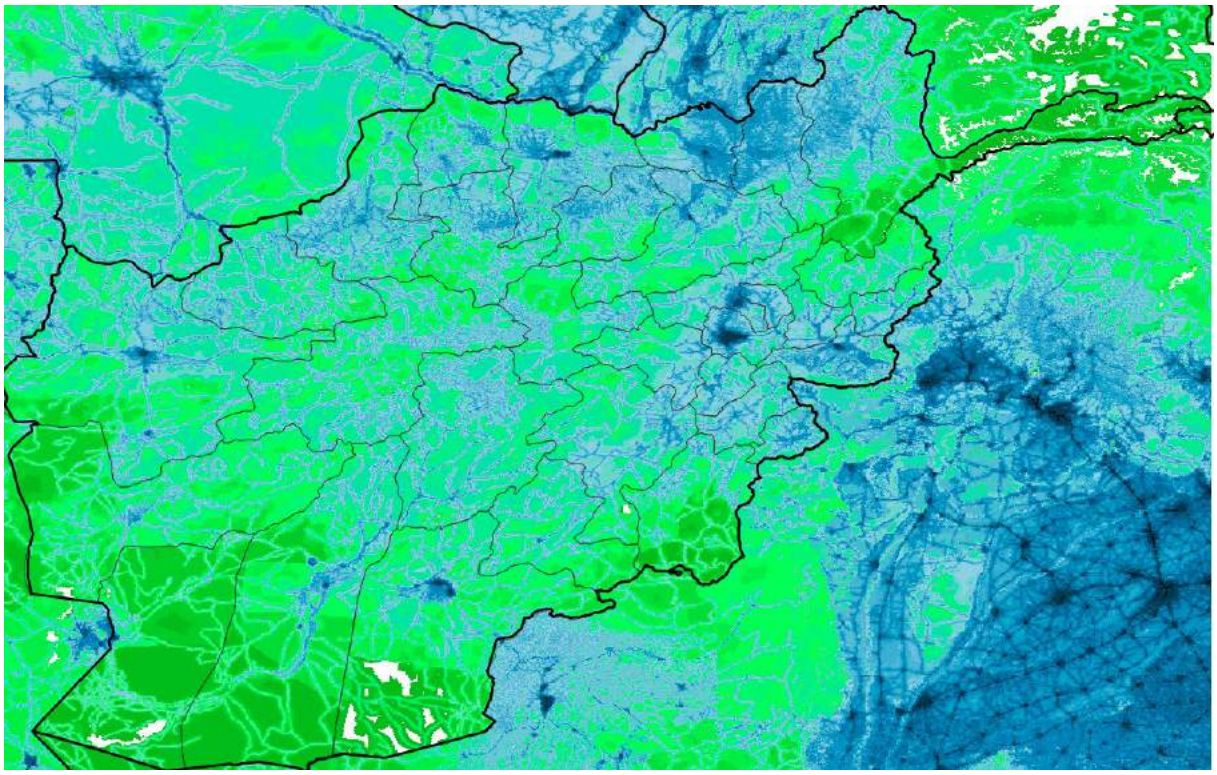

Figure 8. Afghanistan's human footprint in 2013[30]. Greener areas are lower human footprint and bluer areas represent greater human footprint. Data from UN Biodiversity Lab[31], December 2021.

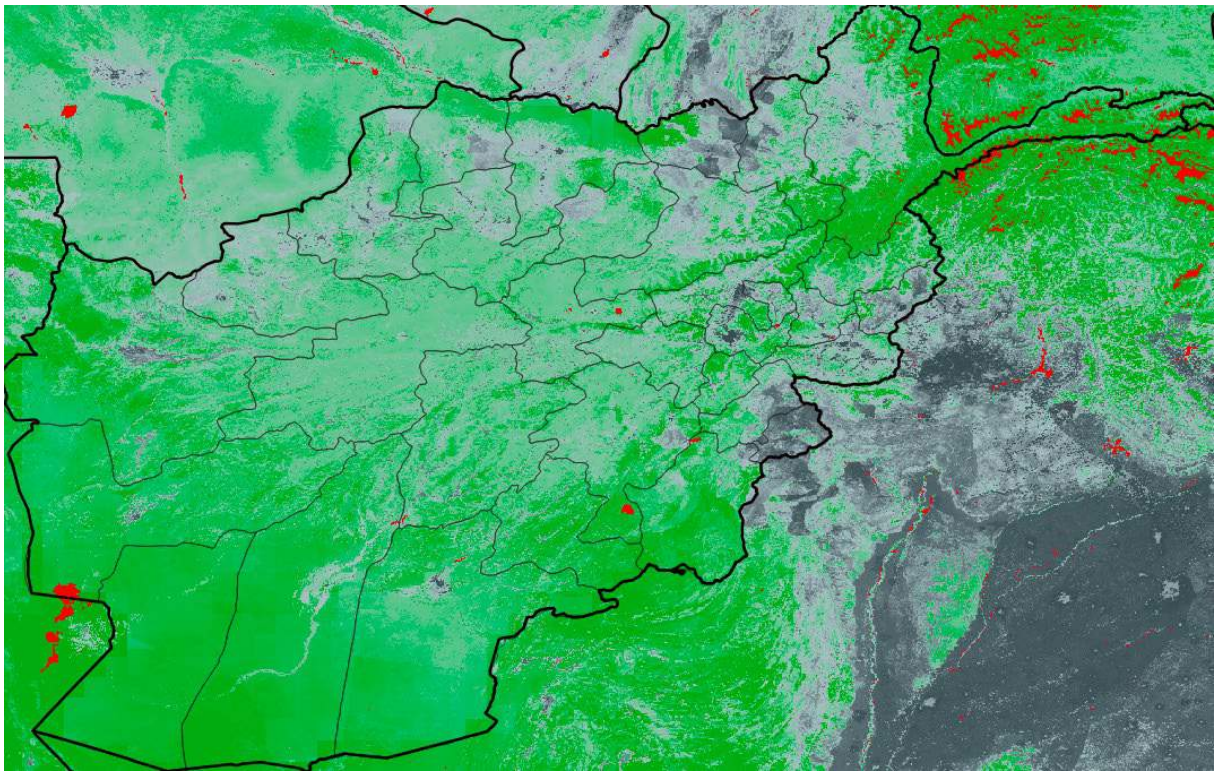

Figure 9. Afghanistan's Biodiversity Intactness Index in 2015[33] showing the modelled average abundance of species relative to abundance in an intact ecosystem. The global dataset encompasses 39,123 species in 18,659 locations. Darker green areas are more intact, darker grey areas are less intact. Red areas are water/snow/rock. Data from UN Biodiversity Lab[34], December 2021.

30. Williams, B.A., et al. 2020. Change in Terrestrial Human Footprint Drives Continued Loss of Intact Ecosystems. One Earth 3, 371–382. https://doi.org/10.1016/j.oneear.2020.08.009
31. https://unbiodiversitylab.org
33. Newbold et al. 2016. Dataset: Global map of the Biodiversity Intactness Index, from Newbold et al. (2016) Science. Natural History Museum Data Portal (data.nhm.ac.uk). https://doi.org/10.5519/0009936

Figure 9 shows the Biodiversity Intactness Index (BII) for Afghanistan in 2015. The BII represents the average abundance of species in a location as a percentage of the original species present. The figure indicates that the mountainous regions of northeastern Afghanistan are the most intact areas of the country. In contrast, Kunduz, Kunar, Nangarhar, Laghman and Khost are the least intact. In general, areas with greater BII (Figure 7) correspond to areas with the lower human footprint (Figure 6). In 2021, Afghanistan's BII was predicted to be 5% above the world average, 12% higher than Uzbekistan's, 2% higher than Tajikistan's, but 8% lower than Pakistan's, and 11% lower than Iran's[32].

Figure 10 shows the change in the BII between 2000 and 2015 indicating that, despite relatively intact biodiversity, degradation continues throughout the country. The northeastern part of the country changed the least with most loss in Faryab, Nangarhar and Khost. Small areas scattered throughout the country showed increases in the BII.

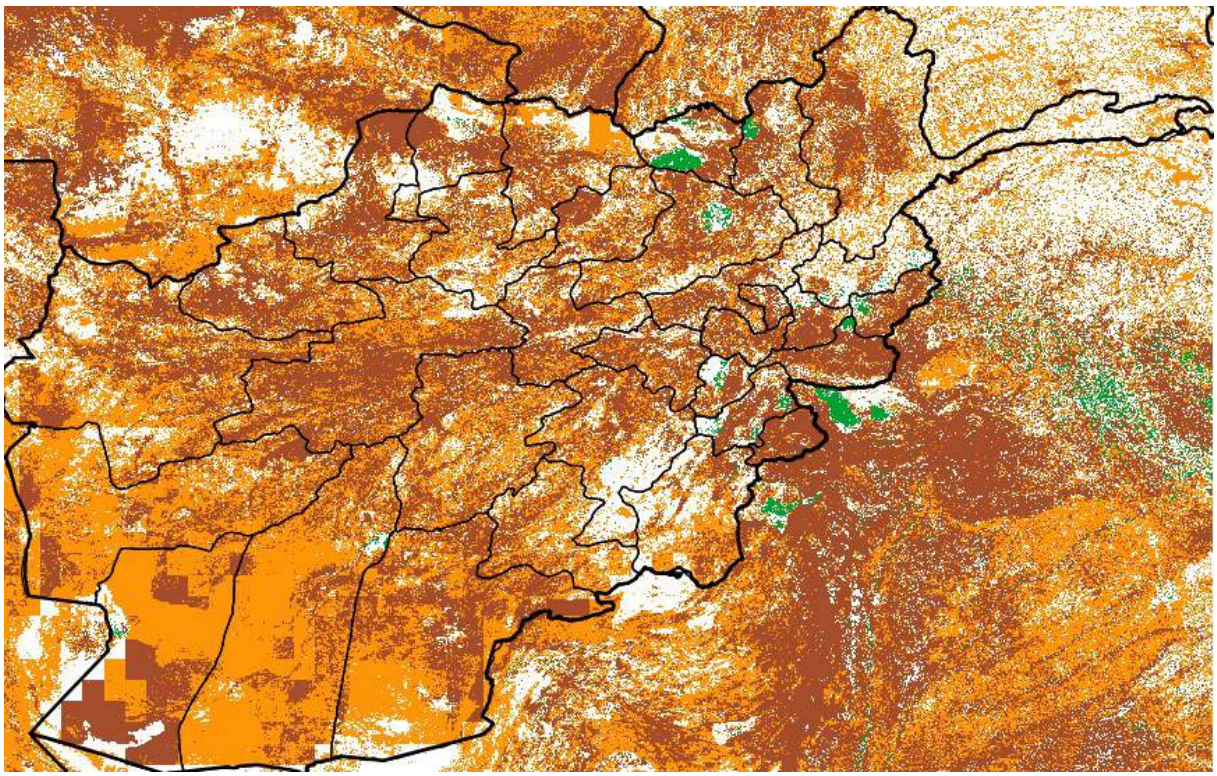

Figure 10. Change in Afghanistan's Biodiversity Intactness Index (BII) between 2000 and 2015[35]. Darker brown areas indicate more intactness loss, white areas indicate little change, green areas indicate increase in intactness. Data from UN Biodiversity Lab[36], December 2021.

34. https://unbiodiversitylab.org
35. https://www.nhm.ac.uk/our-science/data/biodiversity-indicators/biodiversity-intactness-index-data?future-scenario=ssp2_rcp4p5_message_globiom&georegion=001&min-year=1970&max-year=2050&georegion-compare=001.142.143.UZB&future-scenario-compare=null&show-uncertainty=false
35. Newbold et al. 2016. Dataset: Global map of the Biodiversity Intactness Index, from Newbold et al. (2016) Science. Natural History Museum Data Portal (data.nhm.ac.uk). https://doi.org/10.5519/0009936
36. https://unbiodiversitylab.org

HABITAT LOSS AND ECOLOGICAL DEGRADATION

Loss of habitat and degradation of ecosystems are by far the greatest threats to Afghanistan biodiversity. As population pressures on the environment mount, ever-increasing areas of Afghanistan's natural landscapes are converted to human use or are damaged. Overgrazing, plant harvest and *lalmi* (rainfed cropland) all reduce vegetative cover leading to soil erosion, invasion of weeds, nutrient loss and decline in soil carbon. With the loss of vegetation, herbivores decline along with the predators that prey on them. Deforestation destroys the habitat of numerous forest dwelling plants and animals, results in soil erosion and landslides and deprives people of a critical resource for building, heating, and cooking. Diverting or damming stream courses for irrigation and overusing aquifers dries out species-rich wetlands with the loss of many species.

CLIMATE CHANGE

Climate changes observed to date in Afghanistan include increased frequency and duration of drought, increase in mean annual temperature, increased frequency of hot days and nights, declining spring precipitation, slightly increased winter precipitation and more extreme precipitation events[37]. Temperature projections for 2050 suggest increases of 1.4° to 2.0°C by 2050 with the Central Highlands, Hindu Kush and Wakhan, all significant for storage of winter precipitation, being the most affected. Annual precipitation is not expected to change greatly, but spring precipitation will continue to decline somewhat[38]. An October 2021 analysis names Afghanistan as one of the world's 11 countries likely to be most acutely affected by climate change[39].

Afghanistan's per capita CO_2 emission (0.28 t in 2019, 0.6% of the global average) is one of the lowest in the world [40]. Under the 2015 Paris agreement Afghanistan pledged to reduce annual greenhouse gas emissions (carbon dioxide, methane, nitrous oxide, and fluorinated gases) by 13.6% by 2030 compared to the business-as-usual 2030 scenario; that is, to an estimated 42.7 Mt[41]. But by 2017 estimated emissions had grown to 43.5 Mt[42]. The leading source of Afghanistan's GHG emissions is methane from livestock (18.7%) followed by carbon dioxide emitted by heavy trucks and buses (18.0%)[43].

Climate change is expected to result in ecosystem transitions and changes in local biodiversity[44]. The expectation is that some species will disappear, new species will appear, mobile species will move, while yet other species will adapt to the new conditions.

There are few climate change adaptation options that directly benefit components of biodiversity. Instead, most recommendations entail protecting and restoring natural systems to maintain the resilience necessary to buffer the worst effects of climate change. For example, Afghanistan's 2017 report to the UN Framework Convention on Climate Change[45] recommends protecting areas, reducing unsustainable use of natural resources and regeneration of degraded ecosystems as major approaches to climate change adaptation.

37. NEPA & UNEP. 2019. Afghanistan's National Inventory Report (NIR) 2019: submission under the United Nations Framework Convention on Climate Change (UNFCCC). Kabul: National Environmental Protection Agency & United Nations Environment Programme.
38. Aich, V., and A. J. Khoshbeen 2016. Afghanistan: Climate change science perspectives. NEPA, UNEP,
39. National Intelligence Council. 2021. National Intelligence Estimate: Climate Change and International Responses Increasing Challenges to US National Security through 2040. NIC-NIE-2021-10030-A.
40. National Intelligence Council. 2021. National Intelligence Estimate: Climate Change and International Responses Increasing Challenges to US National Security through 2040. NIC-NIE-2021-10030-A.
41. https://ourworldindata.org/co2/country/afghanistan
42. Islamic Republic of Afghanistan. 2015. Intended Nationally Determined Contribution, Submission to the United Nations Framework Convention on Climate Change.
43. NEPA & UNEP 2019. Afghanistan's National Inventory Report (NIR) 2019: submission under the United Nations Framework Convention on Climate Change (UNFCCC). Kabul: National Environmental Protection Agency & United Nations Environment Programme. p77.
44. Ibid.
45. World Bank Group and Asia Development Bank. 2021. Climate Risk Country Profile: Afghanistan.

OVEREXPLOITATION

Overexploitation of biodiversity refers to humans harvesting plants and animals at a greater rate than they can reproduce. Overgrazing by livestock, uncontrolled timber harvest, hunting of rare species and excessive commercial collection of wild plants for traditional medicine, are all serious overexploitation problems in Afghanistan. Loss of species through overexploitation has effects that ripple through the ecosystem not only from direct loss of the exploited species but also from those that depend on them. For example, overgrazing leaves less forage for wild ungulates which in turn affects populations of large predators such as snow leopards. Unsustainable harvesting of Afghanistan's eastern forests is leading not only to direct loss of biodiversity but also to erosion, flooding, landslides, and avalanches. Overexploitation of natural resources leads inevitably to increased poverty among land users.

UNSUSTAINABLE USE OF WATER

As a mountainous country with significant winter snowfalls, Afghanistan hosts the headwaters of several major international drainages. But, damming of rivers and streams and diversion to irrigation has led to water shortages downstream and international tensions over water rights. The rapid proliferation of deep wells is depleting the ground water in many parts of the country. Coupled with periodic droughts, all these factors have depleted Afghanistan's few wetlands resulting in biodiversity loss.

POLLUTION

Air and water pollution are major human health concerns throughout Afghanistan. However, it is difficult to assess the broad impact of environmental pollution on biodiversity. Heavy metals[46] are found in fish and high levels of some pesticides[47] are found in the Kabul River downstream of Afghanistan. Non-steroidal anti-inflammatory drugs are frequently used in domestic animals to treat pain and fever. However, many of these drugs (and particularly diclofenac) are deadly to vultures consuming dead livestock that have been treated with them. Diclofenac poisoning has resulted in a greater than 90% decline in three vulture species in South Asia since 1990's[48].

48. https://www4.unfccc.int/sites/SubmissionsStaging/NationalReports/Documents/9486351_Afghanistan-NC2-1-SNC%20Report_Final_20180801%20.pdf
49. https://reader.elsevier.com/reader/sd/pii/S2405844021013736?token=7BCA550AC2948995C340EB68CE04AEC1040E1B23CD1086FBC1744E1AB905D7D5FFF4BB69F08FA31F52E17F16F2CA7767&originRegion=us-east-1&originCreation=20211106180906
50. https://www.cambridge.org/core/blog/2022/09/28/south-asian-vultures-and-diclofenac/

THREATENED SPECIES

The IUCN Red List categories indicate how close a species is to global extinction. Sixty-five Afghanistan species are currently listed in the three 'Threatened' categories: Critically Endangered, Endangered and Vulnerable. Annex 3 lists Afghanistan species in major taxonomic groups currently listed as Critically Endangered (9), Endangered (17), and Vulnerable (39) on the IUCN Red List of Threatened Species[49]. The Red List also cites 43 Afghanistan species as Near Threatened, 1113 species as Lower Risk, and 44 as Data Deficient.

Article 47 of the Environment Law (2007) states that Afghanistan will list species with unfavourable conservation status as "protected". The Afghanistan Wildlife Executive Committee (AWEC) is an expert committee established in 2009 to assess the status of the country's wild species. The current list is comprised of 149 species of wild flora and fauna.

AGRICULTURAL DIVERSITY

Agricultural diversity refers to the variety of crops and livestock that farmers employ, the genetic variability within the diversity of varieties and landraces employed, the genetic variability of the wild progenitors of domesticated species as well as the micro-organisms that maintain soil fertility. Agricultural biodiversity is important because it provides the farmer with the flexibility to adapt to changing conditions[50].

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49. IUCN 2021. The IUCN Red List of Threatened Species. Version 2021-2. https://www.iucnredlist.org. Downloaded November 2021.
50. UNEP. 2008. Biodiversity Profile of Afghanistan.

PROTECTED AREAS

Protected areas—national parks, wildlife and waterfowl reserves and protected landscapes—are dedicated to the protection of nature and are therefore central to any country's approach to biodiversity conservation. Articles 43 – 38 of Afghanistan's Environment Law (2007) establish the legal basis for Afghanistan's protected areas.

The accepted international definition of a protected area is "... a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values"[51].

Article 42 of the Environment Law of Afghanistan states that protected areas must be created in consultation with local communities, have a justification for establishment, a physical survey of the area, comprehensive management plan and government funding. And finally, protected areas must be established by law.

Following these criteria, to be an official protected area it must meet all the following minimal conditions:

1. Be established in consultation with local communities,
2. Have a justification document and/or management plan,
3. Have clearly defined boundaries,
4. Have some management in place, and
5. 5. Be established by law as a protected area

Band-e-Amir, Ajar Valley, Big Pamir, Dasht-e-Nawar and Ab-e-Estada were all officially gazetted in the 1970s, but these designations have lapsed. None of the current protected areas have yet been gazetted.

51. https://portals.iucn.org/library/sites/library/files/documents/PAG-021.pdf

Table 3. Adherence to official protected area criteria by the nine protected areas declared by NEPA.

Area Name	IUCN Class	Area km² (% of country)	Consultation	Justification	Management Plan	Clear Boundaries	Management	Established in Law	Declared by NEPA
Band-e-Amir National Park	II	613 (0.1%)	Yes	Yes	Yes	Yes	Yes	Presidential Decree	Yes
Wakhan National Park	II	10,950 (1.7%)	Yes	Yes	Yes, not approved	Yes	Yes	Ministerial Council Approval	Yes
Bamyan Plateau Protected Landscape	V	4,200± (0.6%)	Yes	Yes	No	Yes	Yes	No	Yes
Shah Foladi Protected Landscape	V	700± (0.1%)	Yes	Yes	No	Yes	No	No	Yes
Kol-e-Hashmat Khan Waterfowl Sanctuary	IV	2 (0.0%)	No	Yes	Yes	Yes	Yes	No	Yes
Nuristan National Park	II	9,225 (1.5%)	No	No	No	Yes	No	No	Yes
Darqad Wildlife Sanctuary	IV	628 (0.1%)	No	No	No	No	No	No	Yes
Imam Sahib Wildlife Sanctuary	IV	582 (0.1%)	No	No	No	No	No	No	Yes
Dasht-e-Nawar Waterfowl Sanctuary	IV	375 (0.1%)	No	No	No	No	No	No	Yes
TOTAL		27,275 (4.2%)							

Together these nine areas comprise approximately 27,275 km² or %4.2 of the Afghanistan's total area.

An alternative to formal protected areas that has gained increased recognition in recent years are other effective area-based conservation measures (OECMs). An OECM is defined as "a geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the *in- situ* conservation of biodiversity with associated ecosystem functions and services and where applicable, cultural, spiritual, socio–economic, and other locally relevant values". The distinguishing criterion is that protected areas have a primary conservation objective whereas an OECM "delivers in-situ conservation of biodiversity, regardless of its objectives"[52]. For example, a hunting reserve might have the primary purpose of generating a profit through trophy hunting but may also serve to protect the environment and the long-term survival of the hunted species.

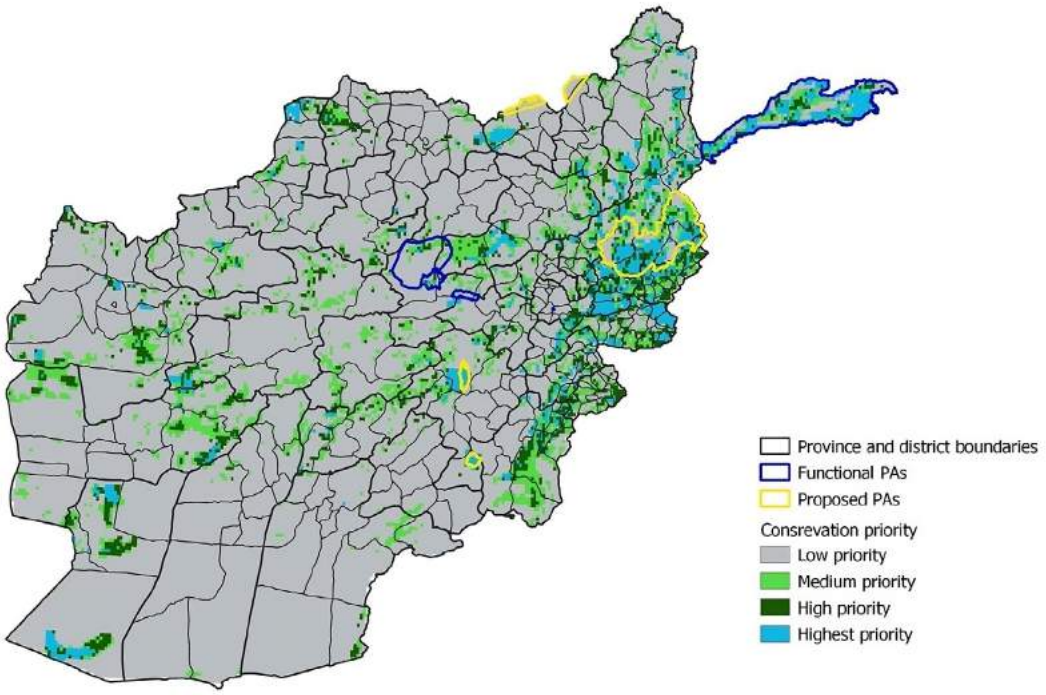

Figure 11. Modeling of priority protected areas for Afghanistan with Provincial and District boundaries. Functional protected areas are outlined in blue. Protected areas in yellow are yet to be fully functional. Modeling by Conservation Solutions, Wildlife Conservation Society.

Figure 11 presents the results of an analysis using the Zonation software to create a spatially explicit map of conservation priorities across the country and to identify key areas for future action.

Zonation utilizes an iterative removal algorithm, wherein the landscape is divided into cells, each of which is given a value based on user-determined inputs. The lowest-value cells are then 'removed', and the remaining cells are then re-evaluated – this process is repeated iteratively until no cells remain. The order in which cells were removed gives their conservation priority with the cells removed first being lowest priority and the cells removed last given highest priority.

Users can customize the inputs used to produce a priority ranking based on their specific factors of interest. In the analysis featured in Figure 10, measures of ecological representation, climate stability, habitat condition, terrestrial vertebrate species diversity and threatened species diversity were used to generate the rankings.

High priority areas indicated in blue and green in Figure 10 have high potential for new protected areas. Field surveys must first be done to determine if the areas encompass sufficient biological value and community support to warrant designation as protected areas or OECMs.

52. IUCN-WDPA Task Force on OECMs. 2019. Guidelines for recognising and reporting other effective area based conservation measures. International Union for Conservation of Nature Switzerland, Gland, Switzerland.

3 CONSULTATION WITH STAKEHOLDERS

Six consultation workshops were conducted between January and May 2021 jointly by WCS and NEPA for the NBSAP revision process (Figure 12). Stakeholders from 27 of the 34 provinces gathered in five regional cities (Mazar-e Sharif, Kabul, Jalalabad, Herat, and Faizabad) and shared their thoughts and opinions. These regional cities, as strategic urban centers, were selected to host the consultation workshop where participants from neighboring provinces come together and represent their provinces. A 'Whole of Society Approach' that ensured inclusiveness, was used to identify stakeholder organizations including national, provincial and municipal government offices, law enforcement authorities, universities, environmental NGOs and Provincial Assembly representatives. A total of 669 people participated in the workshops including 77 women, 109 youth (including 51 females) and 483 adult males.

Results of these consultations have been categorized per topic and informed the development of the present revised NBSAP document. Descriptive statistics from these consultations are provided in Annex 2.

Following development of the draft NBSAP, a three-day workshop was hosted by NEPA in May 2023 (Figure 13). The workshop was attended by representatives from NEPA, MAIL, the Kabul University, the Kabul Zoo, the Ministry of National Defense, Ministry of Foreign Affairs, Bakhtar News Agency, Ministry of Mine and Petroliam, Ministry of Information and Culture, Ministry of Justice, Kabul Municipality, and Department of National Intelligence. The draft was reviewed and discussed line-by-line and comments were incorporated into the final version of the NBSAP.

52. IUCN-WDPA Task Force on OECMs. 2019. Guidelines for recognising and reporting other effective area based conservation measures. International Union for Conservation of Nature Switzerland, Gland, Switzerland.

Figure 12. Stage Banner used during the NBSAP regional consultation workshops in different regions of Afghanistan.

Figure 13. The NBSAP Project Manager presenting the NBSAP contents to the stakeholders and moderating the discussions during the three-days review workshop at NEPA Headquarters in Kabul.

4 THE KUNMING-MONTREAL GLOBAL BIODIVERSITY FRAMEWORK


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In 2010, the CBD approved a Strategic Plan for Biodiversity which included the "Aichi Biodiversity Targets". This set of 20 Targets was to be achieved by 2020. However, an official review[53] concluded that none of the 20 Targets had been met at the global scale although some progress was made. The reasons identified included vague language, uncertain goals, inadequate financing, and lack of consistent, quantitative monitoring.

Recognizing the failure to achieve the Aichi Targets, the CBD approved the Kunming-Montreal Global Biodiversity Framework in December 2022 designed to address the lessons learned from the 2010-2020 strategy. The Kunming-Montreal Framework, adapted to current Afghanistan realities, provides the basis for the target-setting in this NBSAP.

The vision of the Kunming-Montreal Global Biodiversity Framework is a world of living in harmony with nature where *"by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people."*

The Framework defines a Mission stating what must be accomplished at the global scale by 2030 to be on track to meet the 2050 Vision. The 2030 Mission is:

To take urgent action to halt and reverse biodiversity loss to put nature on a path to recovery for the benefit of people and planet by conserving and sustainably using biodiversity and by ensuring the fair and equitable sharing of benefits from the use of genetic resources, while providing the necessary means of implementation.

53. https://www.cbd.int/gbo5/

This NBSAP details how the Islamic Emirate of Afghanistan intends to contribute nationally to the global Vision and Mission.
The Framework has four over-arching global-level goals for 2050 related to the Vision.

GOAL A

- The integrity, connectivity and resilience of all ecosystems are maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050.
- Human induced extinction of known threatened species is halted, and, by 2050, the extinction rate and risk of all species are reduced tenfold, and the abundance of native wild species is increased to healthy and resilient levels.
- The genetic diversity within populations of wild and domesticated species, is maintained, safeguarding their adaptive potential.

GOAL A

- Biodiversity is sustainably used and managed and nature's contributions to people, including ecosystem functions and services, are valued, maintained, and enhanced, with those currently in decline being restored, supporting the achievement of sustainable development for the benefit of present and future generations by 2050.

GOAL C

- The monetary and non-monetary benefits from the utilization of genetic resources and digital sequence information on genetic resources, and of traditional knowledge associated with genetic resources, as applicable, are shared fairly and equitably, including, as appropriate with indigenous peoples and local communities, and substantially increased by 2050, while ensuring traditional knowledge associated with genetic resources is appropriately protected, thereby contributing to the conservation and sustainable use of biodiversity, in accordance with internationally agreed access and benefit-sharing instruments.

GOAL D

- Adequate means of implementation, including financial resources, capacity-building, technical and scientific cooperation, and access to and transfer of technology to fully implement the Kunming-Montreal Global Biodiversity Framework are secured and equitably accessible to all Parties, especially developing country Parties, in particular the least developed countries and small island developing States, as well as countries with economies in transition, progressively closing the biodiversity finance gap of $700 billion per year, and aligning financial flows with the Kunming-Montreal Global Biodiversity Framework and the 2050 Vision for biodiversity.

Of these four goals, only A and B are considered relevant to Afghanistan's current national biodiversity planning. Goal C is intended to ensure that countries of origin benefit from their genetic resources and the genetic sequence data of species occurring in the country. Currently, Afghanistan lacks data on its genetic resources, does not have the capacity to acquire it, and has higher priority issues of biodiversity conservation. A post-2030 NBSAP should revisit this issue. Goal D is a global goal urging flow of financial resources and capacity building from richer nations to least developed nations, such as Afghanistan.

5 AFGHANISTAN CONSERVATION TARGETS, ACTIONS, AND INDICATORS

To fulfill the Global 2030 Mission, every country must define Targets to be achieved by 2030, determine the Actions necessary to achieve those targets and how they will be monitored. The Kunming-Montreal Global Biodiversity Framework proposes 23 Targets. Considering the challenges currently faced by Afghanistan, the country can reasonably expect to address only 18 of them. Targets have been reframed into an Afghanistan perspective (see COP 15/4 for original wording). Recognizing Afghanistan's constraints in capacity and funding, six of the Kunming-Montreal Global Biodiversity Framework Targets (7, 11, 17, 18, 23) will not be addressed. To maintain the integrity of the Framework's Target structure, they are retained in the text together with the justification for Afghanistan choosing not to address them.

The 15th Conference of Parties also adopted a monitoring framework to complement the Kunming-Montreal Global Biodiversity Framework. The Monitoring Framework calls for mandatory monitoring of Headline Indicators for all Goals and Targets. It also includes optional Component and Complementary indicators which can be found in COP Decision 15/5. Some of the proposed indicators have not yet been fully developed. Although not called for in the Monitoring Framework, Afghanistan proposes Action Indicators intended to assess to what degree actions were undertaken and achieved. Annex 1 is a list of those proposed actions and indicators relevant to Afghanistan together with the entity responsible for delivery and the expected completion date.

The total cost of implementing the NBSAP from 2024 – 2030 is estimated at approximately $80-110M. Recognizing that lack of funding and capacity are likely to limit full implementation of the NBSAP, priority should be given to addressing Targets 1 – 5. This will ensure the largest and most immediate results in conserving the Afghanistan's biodiversity.

REDUCING THREATS TO BIODIVERSITY

TARGET 1.
AFGHANISTAN WILL UNDERTAKE BIODIVERSITY-INCLUSIVE LAND-USE PLANNING IN ALL PROTECTED AREAS AND THEIR BUFFER ZONES TO ENSURE NO FURTHER LOSS IN ECOSYSTEMS OF HIGH ECOLOGICAL INTEGRITY. PLANNING ELSEWHERE IN THE COUNTRY WILL BE OPPORTUNISTIC.
Action 1.1.
Include land-use planning in management plans for all protected areas.
Action 1.2.
Undertake spatial planning opportunistically throughout the remainder of the country with significant biodiversity values.

TARGET 2.
AFGHANISTAN WILL RESTORE DEGRADED HABITAT IN PROTECTED AREAS AND IN SPECIFIC ECOSYSTEMS AS RESOURCES ALLOW.
Action 2.1.
Reduce shrub harvest in protected areas.
Action 2.2.
Reduce impact of livestock grazing on grasslands in protected areas.
Action 2.3.
Reduce land conversion to lalmi and undertake research on restoration or replacement of lalmi inside and around protected areas.
Action 2.4.
Undertake community tree planting.

Action 2.5.

Ensure adequate water supply to a minimum of three sizable wetlands.

TARGET 3.

AFGHANISTAN WILL ENSURE THAT AT LEAST 10% OF THE COUNTRY IS IN PROTECTED AREAS OR OTHER EFFECTIVE AREA-BASED CONSERVATION MEASURES (OECMS). ENSURE THAT SUSTAINABLE USE IN PROTECTED AREAS AND OECMS IS CONSISTENT WITH CONSERVATION OUTCOMES.

Action 3.1.

Create additional areas under protection totaling at least 65,000 km^2.

Action 3.2.

Develop and/or update management plans.

Action 3.3.

Evaluate existing management plans for management effectiveness.

Action 3.4.

Effectively protect and manage all protected areas.

Action 3.5.

Afghanistan will revise the national protected area system plan with updated priorities for creation of new protected areas and other effective area-based conservation measures (oecms).

Action 3.6.

Establish protected areas based on law.

TARGET 4.
AFGHANISTAN WILL MAINTAIN POPULATION NUMBERS OF TARGETED SPECIES AND DOCUMENT BASELINE GENETIC DIVERSITY.
Action 4.1.
Undertake conservation programs for priority species noted in annex 4.
Action 4.2.
Establish baseline data on genetic diversity for targeted species.
Action 4.3.
Ban the import and sale of veterinary diclofenac to protect vultures.
Action 4.4.
Review and update the AWEC list of protected species noted in annex 5.

TARGET 5.
AFGHANISTAN WILL ENSURE THAT THE HARVESTING, TRADE AND USE OF WILD SPECIES IS SUSTAINABLE AND LEGAL.
Action 5.1.
Regulate hunting by law or decree.
Action 5.2.
Regulate firearms and ammunition; particularly shotguns and .22 calibre rifles.

Action 5.3.

Control illegal harvest of wild animals in protected areas.

Action 5.4.

Ensure that fur and other products of protected species are not offered for sale in Afghanistan.

Action 5.5.

Establish a functional cites office with trained management and scientific authorities.

Action 5.6.

Report on harvest and international trade of Hing (*Asafoetida*), licorice and medicinal plants.

Action 5.7.

Train and deploy border officials to intercept wildlife trafficking.

Action 5.8.

Eliminate hunting of wildlife by afghan armed forces personnel through internal education programs and enforcement.

TARGET 6.

ELIMINATE, MINIMIZE, REDUCE AND OR MITIGATE THE IMPACTS OF INVASIVE ALIEN SPECIES ON BIODIVERSITY AND ECOSYSTEM SERVICES.

Action 6.1.

Afghanistan will continue to control alien species affecting agricultural production.

TARGET 7.

REDUCE POLLUTION RISKS AND THE NEGATIVE IMPACT OF POLLUTION FROM ALL SOURCES TO LEVELS THAT ARE NOT HARMFUL TO BIODIVERSITY AND ECOSYSTEM FUNCTIONS AND SERVICES.

Afghanistan will not address Target 7. It is not clear that pollution is a serious threat to Afghanistan's biodiversity. The effects of air pollution and plastic waste are best addressed by another forum such as the 2030 Agenda for Sustainable Development. Pesticide and fertilizer use is relatively minor in Afghanistan and reducing them further jeopardizes food independence.

TARGET 8.

AFGHANISTAN WILL MINIMIZE THE IMPACT OF CLIMATE CHANGE ON BIODIVERSITY AND CONTRIBUTE TO MITIGATION AND ADAPTATION THROUGH ECOSYSTEM-BASED APPROACHES.

Action 8.1.

Undertake actions that contribute to resilience of natural systems as referenced in targets 1, 2 and 3.

MEETING PEOPLE'S NEEDS THROUGH SUSTAINABLE USE AND BENEFIT-SHARING

TARGET 9.

AFGHANISTAN WILL ENSURE BENEFITS, INCLUDING NUTRITION, FOOD SECURITY, MEDICINES, AND LIVELIHOODS ESPECIALLY FOR THE MOST VULNERABLE THROUGH SUSTAINABLE MANAGEMENT OF WILD SPECIES AND PROTECTING CUSTOMARY SUSTAINABLE USE BY LOCAL COMMUNITIES.

Action 9.1.

Undertake actions that contribute to resilience of natural systems as referenced in targets 1, 2 and 3.

TARGET 10.

AFGHANISTAN WILL ENSURE ALL AGRICULTURAL AREA ARE MANAGED SUSTAINABLY, IN PARTICULAR THROUGH THE CONSERVATION AND SUSTAINABLE USE OF BIODIVERSITY, INCREASING THE PRODUCTIVITY AND RESILIENCE OF THESE PRODUCTION SYSTEMS.

Action 10.1.

In consultation with local communities and agricultural experts, adapt livestock husbandry and agricultural practices to ensure sustainability in protected areas and their buffer zones.

Action 10.2

Introduce forest management approaches and halt illegal logging in forests.

TARGET 11.

RESTORE, MAINTAIN AND ENHANCE NATURE'S CONTRIBUTIONS TO PEOPLE, INCLUDING ECOSYSTEM FUNCTIONS AND SERVICES THROUGH NATURE-BASED SOLUTIONS AND/OR ECOSYSTEM-BASED APPROACHES FOR THE BENEFIT OF ALL PEOPLE AND NATURE.

Afghanistan will not address Target 11. Target 2 addresses this issue through promotion of ecosystem resilience.

TARGET 12.

AFGHANISTAN WILL INCREASE THE AREA OF, ACCESS TO, AND BENEFITS FROM GREEN AND BLUE SPACES, FOR HUMAN HEALTH AND WELL-BEING IN URBAN AREAS AND OTHER DENSELY POPULATED AREAS.

Action 12.1.

Increase city green space in larger cities by planting native trees.

Action 12.2.

Explore practical approaches to maintaining and restoring water in larger urban water bodies.

TARGET 13.

ENSURE THE FAIR AND EQUITABLE SHARING OF BENEFITS THAT ARISE FROM THE UTILIZATION OF GENETIC RESOURCES AND FROM DIGITAL SEQUENCE INFORMATION ON GENETIC RESOURCES, AS WELL AS TRADITIONAL KNOWLEDGE ASSOCIATED WITH GENETIC RESOURCES, AND FACILITATING APPROPRIATE ACCESS TO GENETIC RESOURCES, AND BY 2030, FACILITATING A SIGNIFICANT INCREASE OF THE BENEFITS SHARED.

Action 13.1.

Promote the technical transfer of genetic knowledge, technology and benefit sharing to government staff and academic institutions.

TOOLS AND SOLUTIONS FOR IMPLEMENTATION AND MAINSTREAMING

TARGET 14.

AFGHANISTAN WILL FULLY INTEGRATE BIODIVERSITY CONSERVATION INTO POLICIES, REGULATIONS, PLANNING, DEVELOPMENT PROCESSES, POVERTY REDUCTION STRATEGIES, ACCOUNTS, LAW ENFORCEMENT AND ASSESSMENTS OF ENVIRONMENTAL IMPACTS AT ALL LEVELS OF GOVERNMENT.

Action 14.1.

Hold workshops (biodiversity roundtables) in all relevant ministries and major stakeholders describing the NBSAP and societal commitments to implement it.

Action 14.2.

Implement approval procedures for industrial development projects affecting the environment outlined in chapter three of the environment law and the environmental impact assessment regulations.

Action 14.3.

Enact and enforce legislation and regulations governing hunting, rangeland use and protected areas.

TARGET 15.

ENSURE THAT NATIONAL AND TRANSNATIONAL BUSINESSES AND FINANCIAL INSTITUTIONS MONITOR AND DISCLOSE THEIR IMPACTS ON BIODIVERSITY, PROVIDE INFORMATION TO THEIR CUSTOMERS ON SUSTAINABLE CONSUMPTION OPTIONS AND REPORT ON COMPLIANCE WITH ACCESS AND BENEFIT SHARING REGULATIONS.

Action 15.1.

National and international businesses conduct environmental impact assessment of their projects and products before implementation.

TARGET 16.

ENSURE THAT PEOPLE ARE ENCOURAGED AND ENABLED TO MAKE SUSTAINABLE CONSUMPTION CHOICES SIGNIFICANTLY REDUCING OVERCONSUMPTION AND SUBSTANTIALLY REDUCING WASTE GENERATION.

Action 16.1.

Explore afghan-relevant approaches to incentivise people to make sustainable choices.

TARGET 17.

ESTABLISH, STRENGTHEN CAPACITY FOR, AND IMPLEMENT IN ALL COUNTRIES, BIOSAFETY MEASURES FOR THE HANDLING OF BIOTECHNOLOGY AND DISTRIBUTION OF ITS BENEFITS.

Afghanistan will not address Target 17. Biotechnology is not a significant threat to Afghanistan relative to other more pressing issues.

TARGET 18.

ELIMINATE, PHASE OUT OR REFORM INCENTIVES, INCLUDING SUBSIDIES, HARMFUL FOR BIODIVERSITY.

Afghanistan will not address Target 18. Subsidies harmful to biodiversity are few in Afghanistan.

TARGET 19.

AFGHANISTAN WILL SEEK TO INCREASE THE LEVEL OF FINANCIAL RESOURCES SUBSTANTIALLY AND PROGRESSIVELY FROM ALL SOURCES, IN AN EFFECTIVE, TIMELY AND EASILY ACCESSIBLE MANNER TO IMPLEMENT AFGHANISTAN'S NBSAP.

ACTION 19.1.

Afghanistan will ensure that opportunities for biodiversity funding are open, transparent and clearly communicated.

TARGET 20.

AFGHANSITAN WILL SEEK TO STRENGTHEN CAPACITY-BUILDING AND DEVELOPMENT, ACCESS TO AND TRANSFER OF TECHNOLOGY, AND PROMOTE DEVELOPMENT OF AND ACCESS TO INNOVATION AND TECHNICAL AND SCIENTIFIC COOPERATION FOR THE CONSERVATION AND SUSTAINABLE USE OF BIODIVERSITY AND STRENGTHENING SCIENTIFIC RESEARCH AND MONITORING CAPACITIES.

Action 20.1.

Afghanistan will ensure that opportunities for capacity building, technology-transfer and scientific cooperation are open, transparent and clearly communicated.

TARGET 21.

AFGHANISTAN WILL ENSURE THAT THE KNOWLEDGE BASE, BOTH SCIENTIFIC AND TRADITIONAL, NECESSARY FOR THE MANAGEMENT AND AWARENESS OF BIODIVERSITY IS AVAILABLE AND COMMUNICATED.

Action 21.1.

Afghanistan will develop a digital repository of information on the country's biodiversity for use.

Action 21.2.

Afghanistan will raise awareness about biodiversity through the Kabul zoo, schools, mosques and media.

TARGET 22.

AFGHANISTAN WILL ENSURE THE FULL, EQUITABLE, INCLUSIVE, EFFECTIVE REPRESENTATION AND PARTICIPATION IN DECISION-MAKING BY LOCAL COMMUNITIES, RESPECTING THEIR CULTURES AND THEIR RIGHTS OVER LANDS, TERRITORIES, RESOURCES, AND TRADITIONAL KNOWLEDGE.

Action 22.1.

All protected areas will have protected area committees with local people in the majority.

Action 22.2.

All OECMS will be developed with the full knowledge, cooperation and agreement of local people.

TARGET 23.

ENSURE GENDER EQUALITY IN THE IMPLEMENTATION OF THE NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN.

Afghanistan will not address Target 23. The Islamic Emirate of Afghanistan considers participation of women in society in accordance with the Islamic laws (Sharia)

6 INTEGRATING BIODIVERSITY CONSERVATION, POVERTY ALLEVIATION AND SUSTAINABLE USE

The NBSAP is largely focused on biodiversity conservation, but for its implementation to be effective in Afghanistan, it must be complemented by broader development and humanitarian initiatives. We have grouped the Targets into three 'portfolios' that help understand which sets of proposed actions address a specific component of integrating biodiversity conservation and sustainable development (Figure 14). Targets 19 (financing) and 20 (capacity-building) are broadly cross-cutting issues applying to all Portfolios and NBSAP Targets.

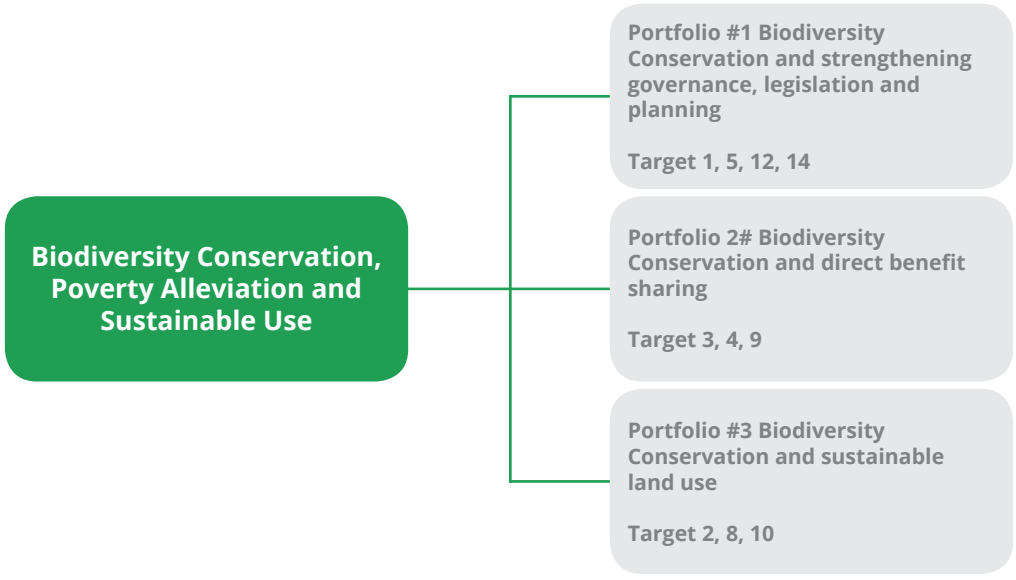

Figure 14. This diagram shows the relevance of national targets to different biodiversity portfolios.

PORTFOLIO #1 Strengthen governance, legislation and planning.

Target 1. Biodiversity-inclusive land-use planning

- Undertake land reform.
- Enforce land management law.
- Enact rangeland law.
- Enact protected area regulations.
- Enhance capacity for environmental impact assessment (EIA).
- Ameliorate land use conflicts.
- Develop models of bottom-up participatory planning.
- Assess and develop alternative land uses and livelihoods.
- Develop holistic natural resource management (NRM) projects.
- Develop criteria, guidelines, and legislation for OECMs.
- Enhance protection for small (< 1 ha) wetlands.

Target 5. Harvesting, trade and use of wild species is sustainable and legal

- Enforce hunting law.
- Enact regulations controlling firearms and ammunition.
- Enforce forest law.
- Enforce CITES procedures and reporting.

Target 12. Increase green and blue spaces in urban areas

- Improve the quality of urban planning.

Target 14. Integrate biodiversity values into policies, regulations, planning

- Further develop poverty eradication policies.
- Enhance policy coherence.

PORTFOLIO #2 Biodiversity conservation and direct benefit sharing

Target 3. 10% of the country in protected areas

- Promote sustainable tourism.
- Empower local communities.
- Increase cash income to local people (tourism and other protected area related incomes).
- Promote community financing and revenue sharing.
- Provide local employment and business opportunities.
- Approve and pilot a limited number of OECMs and monitor their performance.

Target 4. Maintain population numbers of targeted species

- Support OECMs and other sustainable use models.
- Enact direct payment approaches to reduce harm to protected species.
- Support species monitoring initiatives including participatory monitoring and citizen science.

Target 9. Ensure benefits through sustainable management of wild species and protecting customary sustainable use by local communities

- Promote wildlife-based tourism.
- Develop sustainable harvesting and trade programs for commercial use of wild plants.
- Develop sustainable community forestry programs.

PORTFOLIO #3 Biodiversity conservation and sustainable land use

Target 2. Restore degraded habitat

- Secure land tenure for traditional users.
- Promote alternative climate-resilient, biodiversity-friendly, and sustainable agriculture and natural resource use practices.
- Introduce alternatives to biomass for heating and cooking.
- Develop community-based afforestation programs.
- Ban conversion of seasonal wetlands to agriculture or land mining purposes.

Target 8. Minimize impact of climate change on biodiversity

- Reduce biodiversity exposure and vulnerability to climate-change related catastrophes.
- Develop climate-resilient food production systems.
- Promote crop and livestock diversity.
- Maintain intact riparian habitats.

Target 10. Manage agriculture and forestry sustainably

- Increase agricultural productivity sustainably.
- Secure land tenure for traditional users.
- Provide micro loans to producers.
- Improve profitability of agricultural markets to producers.
- Support seed banks.
- Implement community-based afforestation and reforestation programs.
- Reduce illegal forest harvest through community involvement, legislation, and enforcement.
- Promote understanding of sustainable forest management practices.

7 ANNEXES

ANNEX 1. SUMMARY OF GOALS, TARGETS, HEADLINE INDICATORS ACTIONS, ACTION INDICATORS, RESPONSIBILITIES, AND COMPLETION DATES.

Please note the following:

- The CBD expects Headline Indicators to be assessed. This will ensure consistent summaries of performance at the global scale. Headline Indicator numbers are preceded by an "H" to differentiate them for Target Indicators. The CBD has not yet approved some of the Headline Indicators. Afghanistan will not address all Headline Indicators.
- "Responsibility" means the entity that ensures that the work is initiated and completed. It does not mean that that entity necessarily undertakes the work itself. It can be considered as an "executing agency".
- Start dates cannot be determined since initiation of work will depend upon funding availability.
- Goal A and Targets 1 – 5 are considered the highest priority for biodiversity conservation. In the event of limited resources, these are the issues that should be addressed first.

Goal/Target	Headline Indicator	Action	Afghanistan Indicator	Responsibility	Possible Cooperators	Completion Date
Goal A The integrity, connectivity and resilience of all ecosystems are maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050. Human induced extinction of known threatened species is halted, and, by 2050, the extinction rate and risk of all species are reduced tenfold, and the abundance of native wild species is increased to healthy and resilient levels. The genetic diversity within populations of wild and domesticated species, is maintained, safeguarding their adaptive potential.	HA.1 Red List of Ecosystems HA.2 Extent of natural ecosystems. HA.3 Red List Index HA.4 The proportion of populations within species with an effective population size > 500			HA.1. NEPA HA.2. NEPA HA.3. NEPA HA.4. MAIL	HA.1. MAIL, Academia, Academy of Science, MoF HA.2. MAIL HA.3. MAIL HA.4. NEPA, NGOs, INGOs	HA.1. 2030 HA.2. 2030 HA.3 2025 and 2030 HA.4. 2030
Goal B Biodiversity is sustainably used and managed and nature's contributions to people, including ecosystem functions and services, are valued, maintained, and enhanced, with those currently in decline being restored, supporting the achievement of sustainable development for the benefit of present and future generations by 2050.	HB.1. Services provided by ecosystems (indicator is undeveloped by CBD)			HB.1. None	HB.1. None	HB.1. None
Goal C Not considered by Afghanistan						
Goal D Not considered by Afghanistan						
Target 1. Afghanistan will undertake biodiversity-inclusive land-use planning in all protected areas and their buffer zones to ensure no further loss in ecosystems of high ecological integrity. Planning elsewhere in the country will be opportunistic.	H1.1. Red List of Ecosystems H1.2. Extent of natural ecosystems H1.3. Percent of land and sea area covered by biodiversity-inclusive spatial plans.			1. MAIL 2. NEPA 3. NEPA	1. NEPA 2. MAIL, INGO 3. MAIL	1. 2027 – 2030 2. 2027 - 2030 3. 2027 - 2030

Goal/Target	Headline Indicator	Action	Afghanistan Indicator	Responsibility	Possible Cooperators	Completion Date
		1.1. Include land-use planning in management plans for all protected areas.	1.1. All protected area management plans including land-use planning.	1.1. MAIL	1.1 NEPA	1.1. 2025 – 2030
		1.2. Undertake spatial planning opportunistically throughout the remainder of the country.	1.2. No quantitative target proposed. The extent of spatial biodiversity-inclusive planning outside protected areas will be noted.	1.2. MAIL	1.2. NEPA	1.2. no timeline
Target 2. Afghanistan will restore degraded habitat in protected areas and in specific ecosystems as resources allow.	H2.1. Area under restoration			H2.1. MAIL	H2.1. NEPA, INGO	H2.1. 2030
		2.1. Reduce shrub harvest in protected areas.	2.1. Shrub cover decreased in degraded areas of protected areas as determined by remote sensing and field surveys.	2.1. MAIL	2.1. NEPA, INGO	2.1 2026 -2030
		2.2. Reduce impact of livestock grazing on grasslands in protected areas.	2.2. Grass cover maintained or increased in protected area as determined by remote sensing and field surveys.	2.2. MAIL	2.2. NEPA, INGO	2.2 2025-2030
		2.3. Reduce land conversion to *lalmi* and undertake research on restoration or replacement of *lalmi*.	2.3. Report on *lalmi* reduction, restoration or replacement projects.	2.3. MAIL	2.3. NEPA, INGO	2.3 2025 - 2030
		2.4. Undertake community tree planting.	2.4 Increase in forest cover in defined areas.	2.4. MAIL	2.4. NEPA, Protected Area Committee	2.4. 2030
		2.5. Provide adequate water supply to a minimum of three sizable wetlands.	2.5. Report on water availability.	2.5. MAIL	2.5. City of Kabul, relevant entities	2.5. 2030

Goal/Target	Headline Indicator	Action	Afghanistan Indicator	Responsibility	Possible Cooperators	Completion Date
Target 3. Afghanistan will ensure that at least 10% of the country is in protected areas or other effective area-based conservation measures (OECMs). Ensure that sustainable use in protected areas and OECMs is consistent with conservation outcomes.	H3.1. Coverage of protected areas and other effective area-based conservation measures			H3.1. NEPA	H3.1. MAIL, INGOs	H3.1. 2030
		3.1. Create additional areas under protection totaling at least 65,000 km^2.	3.1. Number of km^2 of new areas under effective protection.	3.1. NEPA	3.1. MAIL, NGOs, INGOs, local communities	3.1. 2030
		3.2. Develop and update management plans.	3.2. All new protected areas will have justification documents or management plans in place by 2030 and all expired management plans will be updated.	3.2. MAIL	3.2. NEPA, NGOs, INGOs, local communities	3.2. 2030
		3.3. Evaluate existing management plans for management effectiveness.	3.3. Management plan reviews assess the degree to which planned actions have been completed and sufficient resources allocated.	3.3. NEPA	3.3. MAIL, NGOs, INGOs, local communities	3.3. 2026
		3.4. Effectively protect and manage all protected areas.	3.4. Management plan reviews assess the adequacy of protection and management.	3.4. NEPA	3.4. Relevant organizations, NGOs, INGOs, local communities	3.4. 2026
		3.5. Afghanistan will revise the national protected area system plan with updated priorities for creation of new protected areas and other effective area-based conservation measures (OECMs).	3.5. Protected Areas System Plan revised and updated.	3.5. NEPA	3.5. MAIL, INGOs	3.5. 2028
		3.6. Establish protected areas in law.	3.6. Gazetted protected areas	3.6 NEPA	3.6. Ministry of Justice (Taqnin)	3.6. 2030

Goal/Target	Headline Indicator	Action	Afghanistan Indicator	Responsibility	Possible Cooperators	Completion Date
Target 4. Afghanistan will maintain population numbers of targeted species and document baseline genetic diversity.	H4.1. Red list Index			H4.1. NEPA	H4.1. MAIL, Academy of Science, Academia, NGOs	H4.1. 2025 and 2030
	H4.2. The proportion of populations within species with an effective population size > 500			H4.2. MAIL	H4.2. NEPA, NGOs, INGOs	H4.2. 2030
		4.1. Undertake conservation programs for priority species noted in Annex 5.	4.1. Develop Action Plans and report on conservation activities for a minimum of three priority species noted in Annex 5.	4.1. NEPA	4.1. MAIL, INGOs	4.1. 2030
		4.2. Establish baseline data on genetic diversity for targeted species.	4.2. Report on genetic diversity measurements for a minimum of three species noted in Annex 5.	4.2. NEPA	4.2. MAIL, NGOs, INGOs	4.2. 2030
		4.3. Ban the import and sale of veterinary diclofenac to protect vultures.	4.3. Veterinary diclofenac is no longer available for sale.	4.3. MAIL	4.3. Ministry of Finance, Ministry of Interior, MAIL, National food and Medicine Agency	4.3. 2024
		4.4. Review and update the AWEC list of protected species noted in Annex 6.	4.4. All AWEC-listed species will have status reports less than 5 years old.	4.4. NEPA	4.4. MAIL, Kabul University, INGOs	4.4. 2030
Target 5. Afghanistan will ensure that the harvesting, trade, and use of wild species is sustainable and legal.	H5.1 Proportion of fish stocks within biologically sustainable levels (not applicable in Afghanistan).			H5.1. None	H5.1. None	H5.1. None

Goal/Target	Headline Indicator	Action	Afghanistan Indicator	Responsibility	Possible Cooperators	Completion Date
		5.1. Regulate hunting by law or decree.	5.1. A government-issued law or decree regulating harvest of specified wild animals.	5.1. NEPA	5.1. Ministry of Justice (Taqnin)	5.1. 2025
		5.2. Regulate firearms and ammunition; particularly shotguns and .22 calibre long guns.	5.2. A government-issued law or decree regulating certain classes of firearms and ammunition.	5.2. Ministry of Interior	5.2. Ministry of Justice (Taqnin)	5.2 2025
		5.3. Control illegal harvest of wild animals in protected areas.	5.3. Reports and documentation from protected area staff on amount of hunting within the protected area.	5.3. NEPA	5.3. Ministry of Interior	5.3. 2030
		5.4. Ensure that fur and other products of protected species are not offered for sale.	5.4. Market surveys assessing sales of protected species.	5.4. NEPA	5.4. Ministry of Interior	5.4 2030
		5.5. Establish a functional CITES office with trained management and scientific authorities.	5.5. CITES export/import permits are issued and a central permit database is maintained.	5.5. NEPA	5.5. Ministry of Interior, Ministry of Finance, MAIL	5.5. 2026
		5.6. Report on harvest and international trade of hing, licorice and medicinal plants.	5.6. Report on harvest, trade and export of native plants and their raw and processed products.	5.6 MAIL	5.6. NEPA, Ministry of Commerce and Industry	5.6. 2030
		5.7. Train and deploy border officials to intercept wildlife trafficking.	5.7. Number of officials trained and stationed at control points.	5.7. NEPA	5.7. Ministry of National Defence	5.7. 2028
		5.8. Eliminate hunting of wildlife by Afghan Armed Forces (AAF) personnel through internal education programs and enforcement.	5.8. Report by Ministry of National Defence on actions taken to reduce hunting by AAF personnel.	5.8. Ministry of National Defence	5.8. None.	5.8. 2026, 2030

Goal/Target	Headline Indicator	Action	Afghanistan Indicator	Responsibility	Possible Cooperators	Completion Date
Target 6. Eliminate, minimize, reduce and or mitigate the impacts of invasive alien species on biodiversity and ecosystem services.	H6. Rate of invasive alien species establishment. Afghanistan will not address this indicator			None	None	None
		6.1. Afghanistan will continue to control alien species affecting agricultural production.	6.1. Report from MAIL on efforts taken to control effects of alien species on Afghan agriculture.	6.1. NEPA, MAIL	6.1. Ministry of Interior, Ministry of Finance, MAIL, National Intelligence	6.1. Annually
Target 7. Reduce pollution risks and the negative impact of pollution from all sources by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services. Afghanistan will not address Target 7.	H 7.1 Index of coastal eutrophication potential (not applicable in Afghanistan). H7.2 Pesticide environment concentration (Indicator is undeveloped by CBD)			H7.1. None H7.2. None	H7.1. None H7.2. None	H7.1. None H7.2. None
Target 8. Afghanistan will minimize the impact of climate change on biodiversity and contribute to mitigation and adaptation through ecosystem-based approaches.	None provided by CBD.			H8. None	H8. None	H8. None
		8.1. Undertake actions that contribute to resilience of natural systems as referenced in Targets 1, 2 and 3.	Refer to Indicators for Targets 1, 2 and 3	As per responsibilities in Targets 1, 2 and 3	As per cooperators in Targets 1, 2 and 3	As per completion dates for Targets 1, 2, and 3
Target 9. Afghanistan will ensure benefits, including nutrition, food security, medicines, and livelihoods especially for the most vulnerable through sustainable management of wild species and protecting customary sustainable use by local communities.	H9.1. Benefits from the sustainable use of wild species Afghanistan will not address this indicator. H9.2. Percentage of the population in traditional occupations Afghanistan will not address this indicator.			H9.1. None H9.2. None	H9.1. None H9.2. None	H9.1. None H9.2. None

Goal/Target	Headline Indicator	Action	Afghanistan Indicator	Responsibility	Possible Cooperators	Completion Date
		Action 9.1. Undertake actions that contribute to resilience of natural systems as referenced in Targets 1, 2 and 3.		As per responsibilities in Targets 1, 2 and 3	As per cooperators in Targets 1, 2 and 3	As per completion dates for Targets 1, 2, and 3
Target 10. Afghanistan will ensure all agricultural areas are managed sustainably, in particular through the conservation and sustainable use of biodiversity, increasing the productivity and resilience of these production systems.	H10.1 Proportion of agricultural area under productive and sustainable agriculture Afghanistan will not address this indicator. H10.2. Progress towards sustainable forest management			H10.1. None H10.2. MAIL	H10.1. None H10.2. INGOs	H10.1. None H10.2. 2030
		10.1. In consultation with local communities and agricultural experts, adapt livestock husbandry and agricultural practices to ensure sustainability in protected areas and their buffer zones. 10.2. Introduce forest management approaches and halt illegal logging in forests.	10.1. Description of revised practices adopted. 10.2. Area of closed natural forest (>30% cover) stable or increasing.	10.1. MAIL 10.2. MAIL	10.1. NGOs, INGOs 10.2. NEPA, Ministry of Interior, INGOs	10.1. 2030 10.2. 2030
Target 11. Restore, maintain, and enhance nature's contributions to people, including ecosystem functions and services through nature-based solutions and/or ecosystem-based approaches for the benefit of all people and nature. Afghanistan will not address Target 11.	Services provided by ecosystems (indicator is undeveloped by CBD)			None.	None.	None.

Goal/Target	Headline Indicator	Action	Afghanistan Indicator	Responsibility	Possible Cooperators	Completion Date
Target 12. Afghanistan will Increase the area of, access to, and benefits from green and blue spaces, for human health and well-being in urban areas and other densely populated areas.	H12. Average share of the built-up area of cities that is green/blue space for public use for all.			H12. Municipalities and Urban Development Departments	H12. NEPA	H12. 2030
		12.1 Increase city green spaces in larger cities by planting native trees.	12.1. Increasing greenness of major cities using satellite imagery such as HUGSI.	12.1. Municipalities	12.1. NEPA, MAIL	12.1. 2030
		12.2. Explore practical approaches to maintaining and restoring water in larger urban water bodies.	12.2. Report from water experts on most effective approaches to conserve and restore large urban water bodies.	12.2. Ministry of Energy and Water, MAIL	12.2. NEPA	12.2. 2030
Target 13. Ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and from digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources, and facilitating appropriate access to genetic resources, and by 2030, facilitating a significant increase of the benefits shared.	H13.1. Indicator on monetary benefits received.			H13.1. Ministry of Finance	H13.1. NEPA, MAIL	H13.1. 2030
	H13.2. Indicator on non-monetary benefits			H13.2. NEPA	H13.2 MAIL	H13.2. 2030
		Action 13.1. Promote the technical transfer of genetic knowledge, technology and benefit sharing to government staff and academic institutions.		13.1. MAIL	13.1. NEPA	13.1. 2030
Target 14. Afghanistan will fully integrate biodiversity conservation into policies, regulations, planning, development processes, poverty reduction strategies, accounts, law enforcement and assessments of environmental impacts at all levels of government.	None			None	None	None

Goal/Target	Headline Indicator	Action	Afghanistan Indicator	Responsibility	Possible Cooperators	Completion Date
		14.1 Hold workshops (Biodiversity Roundtables) in all relevant ministries and major stakeholders describing the NBSAP and societal commitments to implement it. 14.2 Implement approval procedures for industrial development projects affecting the environment outlined in Chapter Three of the Environment Law and the Environmental Impact Regulations. Action 14.3 Enact and enforce legislation and regulations governing hunting, rangeland use and protected areas.	14.1. Number of workshops with significant representation and shared workshop reports. 14.2. Project approvals and EIAs. 14.3. Gazetted laws and published regulations.	14.1. NEPA 14.2. NEPA 14.3. NEPA	14.1. Ministry of Information and Culture 14.2. Ministry of Justice 14.3. Ministry of Justice (Taqnin), Ministry of Interior, MAIL	14.1. 2030 14.2. 2030 14.3. 2030
Target 15. Ensure that national and transnational businesses and financial institutions monitor and disclose their impacts on biodiversity, provide information to their customers on sustainable consumption options and report on compliance with access and benefit sharing regulations. Afghanistan will not address Target 15.	H15. Number of companies reporting on disclosures of risks, dependencies and impacts on biodiversity (indicator is undeveloped by CBD)			None	None	None
Target 16. Ensure that people are encouraged and enabled to make sustainable consumption choices significantly reducing overconsumption and substantially reducing waste generation.	None			None	None	None

Goal/Target	Headline Indicator	Action	Afghanistan Indicator	Responsibility	Possible Cooperators	Completion Date
		16.1. Explore Afghan-relevant approaches to incentivise people to make sustainable choices.	16.1. Report suggesting best approaches to incentivise Afghan citizens to make sustainable lifestyle choices.	16.1. NEPA	16.1. Ministry of Information and Culture	16.1. 2030
Target 17. Establish, strengthen capacity for, and implement in all countries, biosafety measures for the handling of biotechnology and distribution of its benefits. Afghanistan will not address Target 17.	None			None	None	None
Target 18. Eliminate, phase out or reform incentives, including subsidies, harmful for biodiversity. Afghanistan will not address Target 18.	H18.1 Positive incentives in place to promote biodiversity conservation and sustainable use. H18.2 Value of subsidies and other incentives harmful to biodiversity that have been eliminated, phased out or reformed			H18.1 None H18.2 None	H18.1 None H18.2 None	H18.1 None H18.2 None
Target 19. Afghanistan will seek to increase the level of financial resources substantially and progressively from all sources, in an effective, timely and easily accessible manner to implement Afghanistan's NBSAP.	H19.1 International public funding, including official development assistance (ODA) for conservation and sustainable use of biodiversity and ecosystems. H19.2 Domestic public funding on conservation and sustainable use of biodiversity and ecosystems. H19.3 Private funding (domestic and international) on conservation and sustainable use of biodiversity and ecosystems (Indicator is undeveloped by CBD)			H19.1. Ministry of Finance H19.2. NEPA, MAIL H19.3. None	H19.1. NEPA, MAIL H19.2. Ministry of Finance H19.3. None	H19.1. 2030 H19.2. 2030 H19.3. None

Goal/Target	Headline Indicator	Action	Afghanistan Indicator	Responsibility	Possible Cooperators	Completion Date
		ACTION 19.1. Afghanistan will ensure that opportunities for biodiversity funding are open, transparent and clearly communicated.	19.1. Funding from all sources earmarked for implementing Afghanistan's NBSAP.	19.1. NEPA	19.1. Mail, Ministry of Finance	19.1. 2030
Target 20. Afghanistan will seek to strengthen capacity-building and development, access to and transfer of technology, and promote development of and access to innovation and technical and scientific cooperation for the conservation and sustainable use of biodiversity and strengthening scientific research and monitoring capacities.	None					
		20.1. Afghanistan will ensure that opportunities for capacity building, technology-transfer and scientific cooperation are open, transparent and clearly communicated.	20.1. Report on trainings received by Afghans and on technologies transferred.	20.1. NEPA	20.1. Ministry of Education, Ministry of Higher Education	20.1 2030
Target 21. Afghanistan will ensure that the knowledge base, both scientific and traditional, necessary for the management and awareness of biodiversity is available and communicated.	H21. Indicator on biodiversity information for the monitoring the global biodiversity framework.			H21. NEPA	H21. MAIL	H21. 2030
		21.1. Afghanistan will develop a digital repository of information on the country's biodiversity for use.	21.1. Established digital repository.	21.1 NEPA	21.1. MAIL, Academy of Science, Academia	21.1. 2027
		21.2. Afghanistan will raise awareness about biodiversity through schools, mosques, and media.	21.2. Report on biodiversity awareness raising efforts	21.1. NEPA	21.2. Ministry of Education, Ministry of Haj and Religious Affairs, Ministry of Information and Culture	21.2. 2030

Goal/Target	Headline Indicator	Action	Afghanistan Indicator	Responsibility	Possible Cooperators	Completion Date
Target 22. Afghanistan will ensure the full, equitable, inclusive, effective representation and participation in decision-making by local communities, respecting their cultures and their rights over lands, territories, resources, and traditional knowledge.	None			None	None	None
		22.1. All protected areas will have protected area committees with local people in the majority.	22.1. Proportion of protected areas having functional protected area committees with local people in the majority.	22.1. MAIL	22.1. NEPA, NGOs, INGOs	22.1 2030
		22.2. All OECMs will be developed with the full knowledge, cooperation, and agreement of local people.	22.2. Report on development of OECMs detailing the inputs of local people.	22.2. MAIL	22.2. MAIL, NGOs, INGOs	22.2. 2030
Target 23. Ensure gender equality in the implementation of the National Biodiversity Strategy and Action Plan. Afghanistan will not address Target 23.	None			None	None	None

ANNEX 2. SUMMARY OF STAKEHOLDERS' CONSULTATIONS CARRIED OUT BETWEEN JANUARY AND MAY 2021

A total of 669 people that included 483 men, 77 women, and 109 youth (including 51 females) participated in the workshops. Table 2.1 provides more details about the consultation workshops.

Table 2.1. Details of the national consultation workshops carried out in 2021 in Afghanistan.

Date	Region	No. of Provinces	Number of participants				Total Participants
			Male	Female	Youth		
					Male	Female	
11-12 Jan	North	5	69	15	13	10	107
25-26 Jan	Capital	4	51	9	0	0	60
16-18 Feb	Northeast	4	82	11	8	25	126
2-4 Mar	West	2	51	14	9	12	86
2-4 Feb	East	4	70	18	16	0	104
8-11 May	Southeast & Center	8	160	10	12	4	186
Total		27	483	77	58	51	669

The consultation process conducted a series of workshops over 2 – 4 days and included several presentations and discussion sessions. The presentations aimed to update the participants on the NBSAP process, the Post-2020 Global Biodiversity Framework (GBF), and the role of religious scholars, urban and rural dwellers, women, and youth in conservation. In addition, questionnaire surveys were conducted to gather participant inputs on Post-2020 Global Biodiversity Targets, whole of society approach, and illegal wildlife trade. The workshops also included comprehensive group works to gain perspectives of religious scholars, urban dwellers, women, and youth on biodiversity in their respective areas.

The information gathered during consultations was analysed and descriptive statistics are presented here on the views and perceptions of participants on a variety of key topics relevant to biodiversity.

Land degradation – drivers and solutions

Over 50% of the questionnaire respondents reported flooding, riverbank erosion, deforestation, overgrazing and conversion of rangeland to rainfed agriculture as major land degradation factors in their areas (Fig. 2.1). Amongst solutions to overcome land degradation, tree planting, better legal protection for trees, shrubs and rangelands, increase in number of protected areas, particularly in mountainous areas, were most frequently proposed (Fig. 2.2).

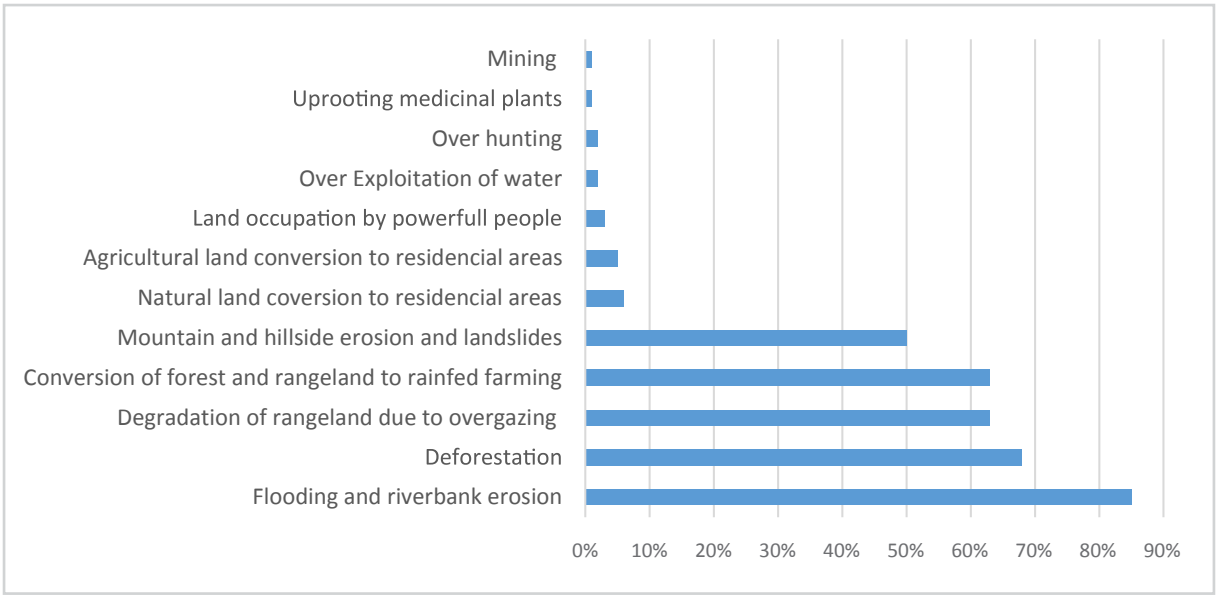

Figure 2.1. Factors associated with ecosystem and land degradation most often cited by consultation workshop participants (n = 392).

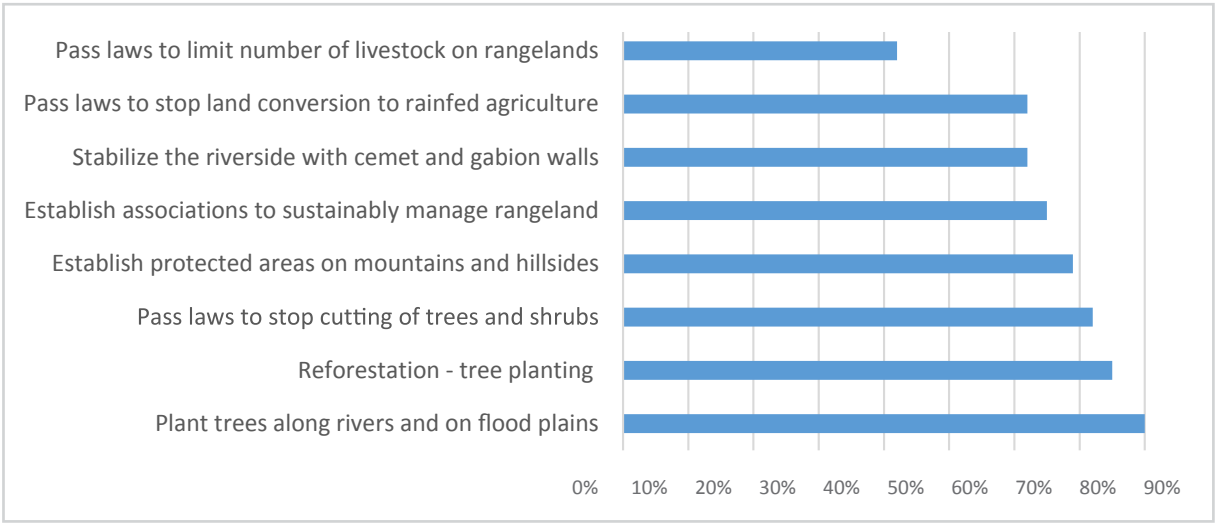

Figure 2.2. Solutions to ecosystem and land degradation most often cited by consultation workshop participants (n = 397).

Land protection – justifications

Among the ecosystem protection measures, nearly 70% of the workshop participants emphasized on the importance of establishing new protected areas. The proposed justifications are ranked in Table 2.2.

Table 2.2. Justifications for land protection listed by order of frequency as proposed by participants to consultation workshops.

Justifications	No. of areas proposed to be protected for the corresponding purpose
Biodiversity and wildlife protection	125
Forest, medicinal plants, and rangeland protection	111
Recreational values	88
Water sources and natural springs	62
Tourism potential	27
Beauty of nature	25
Cultural heritage protection and historical value	19
Economic values (e.g., forest production)	18
Prevention of natural disasters	12
Fish protection	10
Bird protection	9
Presence of gold, minerals, valuable stones, and other mines	7
Livestock protection*	7
Source of oxygen and clean air	6
Presence of wetlands and migratory birds	5
Prevent dust	4
Presence of waterfalls	2
Glaciers	2

*Respondents proposed areas to be protected as rangeland and pastures for their livestock

Hunting – perceptions and understanding

Over 90% of 400 participants stated that hunting was illegal in Afghanistan, whereas only 6% thought the opposite. Around 42% of respondents were in favor of a ban on hunting, while c. 55% of them supported the idea of having legal hunting in Afghanistan. Eleven percent of the respondents believed that the detention of wild animals as pet is legal and 89% believed the opposite.

Wildlife trade – perceptions and understanding

Wildlife markets appear to be widespread throughout the country with high variability in volumes and products offered for sale. Around 29% of 400 respondents reported the presence of wildlife markets and shops in their regions. Although not specified, shops with wildlife products seemed more frequent than shops with life animals.

Climate change – perceived impacts

Over 94% of the respondents thought that climate change impacted their areas and c. 91% of them associated natural disasters in their respective areas to the change in climate in recent years. Intense flooding, longer droughts, food shortage, flash floods and early dry seasons were most frequently associated with climate change by participants. Participants reported several other climate change impacts in their respective areas (Fig. 2.3).

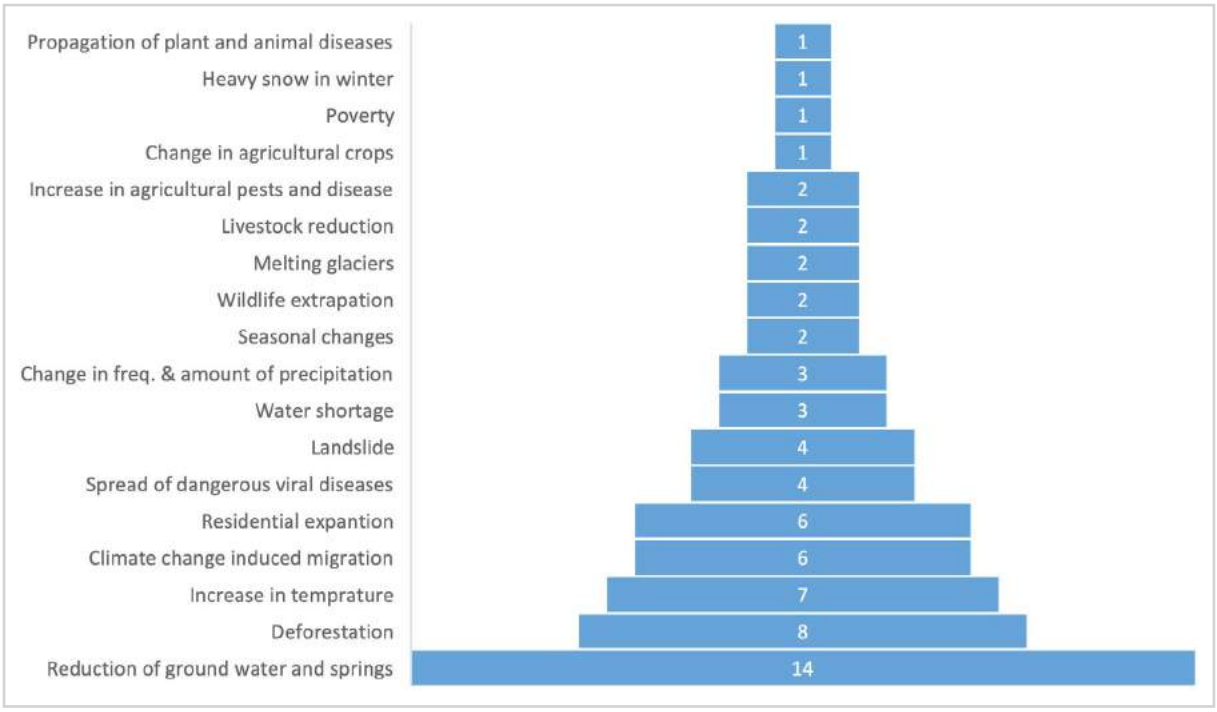

Figure 2.3. Impacts of climate change as perceived by consultation workshop participants. The numbers in every bar correspond to the number of participants associating these impacts to climate change in their respective areas.

Natural disasters and pollution – perception and understanding

The workshop participants were concerned about natural disasters in their respected areas. They were asked to agree or disagree with a set of proposed solutions that could help reduce natural disasters. They were also asked to list any traditional ways to address these issues in their areas.

Most of the respondents (n=342) agreed with more than one proposed solution and 10 of them (around 3%) also proposed solutions to reduce pollution (Table 2.3).

Table 2.3. Level of acceptance of proposed solutions against natural disasters by consultation workshop participants and solutions proposed by 10 of them against pollution.

Potential solutions to reduce natural disasters and proposed solutions against pollution	No. of respondents agreeing	Percent (%) respondents agreeing
Plant trees and shrubs along rivers to reduce impact of flooding	267	66.8
Plant trees on mountains and slopes to restore watershed and reduce erosion	255	63.8
Use energy efficient stoves to reduce fuelwood consumption	168	42.0
Restore degraded ecosystems and rangelands	161	40.3
Law enforcement on the collection of biofuels (tree and shrubs) from protected areas, forests and rangelands	141	35.3
Put in place protected areas in upper watershed	109	27.3
Use of electricity and gas to limit air pollution*	2	0.5
Use fuel efficient heaters (Sandali) to prevent pollution*	2	0.5
Enact community ban on deforestation*	2	0.5
Limit use of fossil fuels and pollutants*	1	0.3

Potential solutions to reduce natural disasters and proposed solutions against pollution	No. of respondents agreeing	Percent (%) respondents agreeing
Establish natural resource committees*	1	0.3
Increase awareness about the pollution and natural disaster*	1	0.3
Use renewable energy to prevent air pollution*	1	0.3

* Respondents suggested solution

Green spaces – perception and understanding

In general, respondents had positive views about the increase in area, access, and benefits from green spaces, for human health and well-being in urban areas. Over 84% (n = 323) of the respondents stated that there were green spaces in their respected areas, however, more than half of them reported the absence of recreational areas specific to women and families. 98% (n = 377) of respondents thought their areas needed more green spaces. Figure 2.4 provides more details about respondents' perception of urban green spaces.

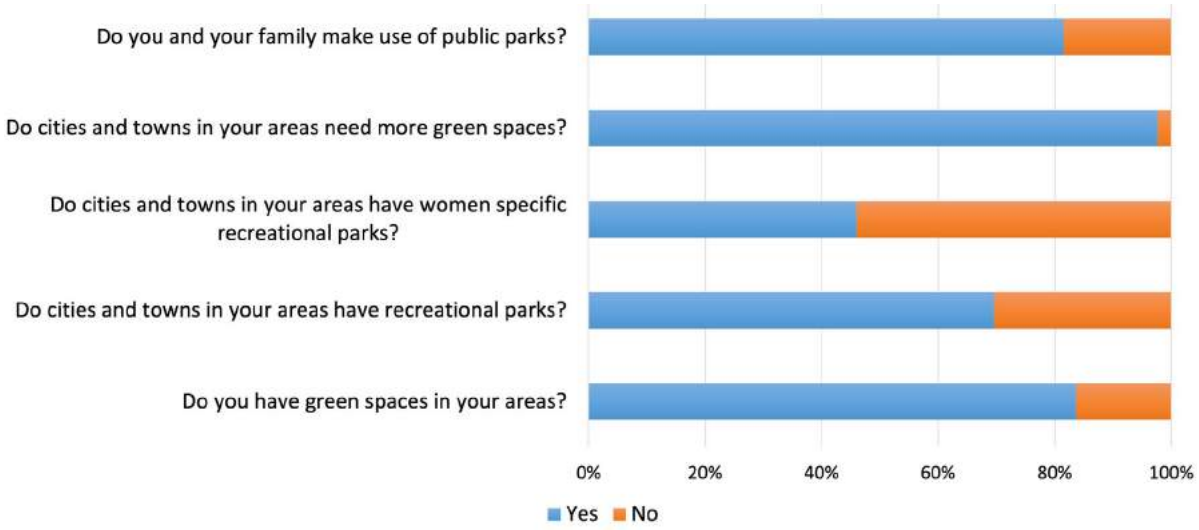

Figure 2.4. Views about green spaces as perceived by consultation workshop participants.

The actors of biodiversity conservation in Afghanistan

According to Target 14 of the post-2020 Global Biodiversity Framework, Afghanistan is committed to fully integrate biodiversity values into policies, regulations, planning, development processes, poverty reduction strategies, and assessments of environmental impacts at all levels of government and across all sectors of the economy. Participants to workshops (n=400) were asked to mention the sectors that have the most (r=3) and least (r=1) important roles in biodiversity conservation in Afghanistan. The Ministry of Agriculture, Irrigation, and Livestock (MAIL) ranked high (r = 2.7), followed by the National Environmental Protection Agency (NEPA) (r = 2.6), and Law Enforcement Agencies (r = 1.9).

Sources of funding for biodiversity conservation in Afghanistan

Funding sources for biodiversity conservation were an interesting subject for the participants throughout the country. Most respondents thought that conservation funding should come from the United Nations (65% of the respondents), governmental budget (64%) and World Bank (55%), and around 36% of them agreed that biodiversity conservation funding should come from a variety of governmental and non-governmental organizations, including bilateral and multilateral donors, and the private sector. Only 2.2%, 1.5%, and 1% thought that the conservation fund should come only from the government budget, UN agencies and 'conservation organizations', respectively.

Biodiversity conservation decision-making

When questioned about conservation governance in Afghanistan, approximately 58% of respondents thought that stakeholders from various relevant organizations including national and subnational government authorities, community associations, academia, private sector and civil society, women, and youth should participate in decision makings on biodiversity conservation. Only 1.5% (6 out of 400 respondents) believed that only the national government has the right and responsibility to take decisions in biodiversity conservation. Some respondents (~1%) suggested that 'Mullah Imams' and religious scholars should also be involved in the decision processes.

Women and youth participation in decisions over biodiversity conservation

Participants also emphasized the legitimacy and role of women in biodiversity conservation decisions (Table 2.4).

Table 2.4: Legitimacy and role of women in biodiversity conservation decisions as perceived by consultation workshop participants.

Reasons why women should be involved in biodiversity conservation decisions	Percent respondent suggested
Women compose 50% of our population	81%
Women* play important role in dairy production and are exposed to disease transmission among livestock, wildlife and human	71%
Women* are dependent on biodiversity and natural resources for their livelihoods	70%
Women have different needs and priorities related to biodiversity	67%
Women* and children are more impacted by climate change	65%
Women* play an important role in collection and storage of seeds for agriculture	62%
Women* are less mobile and more dependent on biodiversity compared men	61%

*Women in rural areas

Over 70% of respondents also emphasized on the important role of youth in decision makings related to biodiversity conservation. They provided several reasons for including youth in decision making on biodiversity conservation: 1) 65% of the population is under the age of 24 years and their specific needs and priorities need to be addressed, 2) young people tend to be better educated and have a better understanding of the negative impacts of climate change, 3) young generations will be responsible for biodiversity conservation in the future, 4) youth, adolescents and children have rights under national and international laws, and these rights need to be protected.

ANNEX 3. GLOBAL STATUS OF AFGHANISTAN SPECIES LISTED BY THE IUCN RED LIST[54].

Critically Endangered | Endangered | Vulnerable | Near Threatened

Species	IUCN Listing	Common Name
MAMMALS		
Cuon alpinus	Endangered (Extinct in Afghanistan)	Dhole
Moschus cupreus	Endangered	Kashmir Muskdeer
Panthera tigris	Endangered (Extinct in Afghanistan)	Tiger
Acinonyx jubatus	Vulnerable (Likely extinct in Afghanistan)	Cheetah
Gazella subgutturosa	Vulnerable	Goitered Gazelle
Ovis vignei	Vulnerable	Urial
Panthera leo	Vulnerable (Extinct in Afghanistan)	Lion
Panthera pardus	Vulnerable	Common Leopard
Panthera uncia	Vulnerable	Snow Leopard
Rhinolophus mehelyi	Vulnerable	Mehely's Horseshoe Bat
Ursus thibetanus	Vulnerable	Asiatic Black Bear
Vormela peregusna	Vulnerable	Marbled Polecat
Capra aegagrus	Near Threatened	Wild Goat
Capra falconeri	Near Threatened	Markhor
Capra sibirica	Near Threatened	Siberian Ibex
Equus hemionus	Near Threatened (Extinct in Afghanistan)	Asiatic Wild Ass
Hyaena hyaena	Near Threatened	Striped Hyaena
Lutra lutra	Near Threatened	Eurasian Otter
Miniopterus pallidus	Near Threatened	Pale Bent-wing Bat
Mustela altaica	Near Threatened	Altai Weasel
Myotis bechsteinii	Near Threatened	Bechstein's Myotis
Myotis formosus	Near Threatened	Hodgson's Bat
Ovis ammon	Near Threatened	Argali
BIRDS		
Gyps bengalensis	Critically Endangered (Possibly extinct in Afghanistan)	White-rumped Vulture
Gyps indicus	Critically Endangered (Presence uncertain in Afghanistan)	Indian Vulture
Leucogeranus leucogeranus	Critically Endangered (Possibly extinct in Afghanistan)	Siberian Crane
Vanellus gregarius	Critically Endangered	Sociable Lapwing
Aquila nipalensis	Endangered	Steppe Eagle
Falco cherrug	Endangered	Saker Falcon
Haliaeetus leucoryphus	Endangered	Pallas's Sea-eagle
Neophron percnopterus	Endangered	Egyptian vulture
Numenius mad-agascariensis	Endangered (Presence uncertain in Afghanistan)	Far Eastern Curlew
Oxyura leucocephala	Endangered	White-headed Duck
Anser erythropus	Vulnerable	Lesser White-fronted Goose
Aquila heliaca	Vulnerable	Eastern Imperial Eagle
Aythya ferina	Vulnerable	Common Pochard

54. https://www.iucnredlist.org/

Species	IUCN Listing	Common Name
Branta ruficollis	Vulnerable	Red-breasted Goose
Chlamydotis macqueenii	Vulnerable	Macqueen's Bustard
Clanga clanga	Vulnerable	Greater Spotted Eagle
Columba eversmanni	Vulnerable	Yellow-eyed Pigeon
Emberiza rustica	Vulnerable	Rustic Bunting
Marmaronetta angustirostris	Vulnerable	Marbled Duck
Melanitta fusca	Vulnerable	Velvet Scoter
Otis tarda	Vulnerable	Great Bustard
Podiceps auritus	Vulnerable	Horned Grebe
Rissa tridactyla	Vulnerable (Vagrant in Afghanistan)	Black-legged Kittiwake
Saxicola macrorhynchus	Vulnerable	White-browed Bush Chat
Sterna aurantia	Vulnerable	River Tern
Streptopelia turtur	Vulnerable	European Turtledove
Aegypius monachus	Near Threatened	Cinereous Vulture
Anthus pratensis	Near Threatened	Meadow Pipit
Aythya nyroca	Near Threatened	Ferruginous Duck
Calidris ferruginea	Near Threatened	Curlew Sandpiper
Circus macrourus	Near Threatened	Pallid Harrier
Falco jugger	Near Threatened	Laggar Falcon
Falco vespertinus	Near Threatened	Red-footed Falcon
Gallinago media	Near Threatened	Great Snipe
Mareca falcata	Near Threatened (Vagrant in Afghanistan)	Falcated Duck
Numenius arquata	Near Threatened	Eurasian Curlew
Palaeornis eupatria	Near Threatened	Alexandrine Parakeet
Pelecanus crispus	Near Threatened	Dalmatian Pelican
Phoeniconaias minor	Near Threatened (Vagrant in Afghanistan)	Lesser Flamingo
Phylloscopus tytleri	Near Threatened	Tytler's Leaf-warbler
Tetrax tetrax	Near Threatened	Little Bustard
Turdus iliacus	Near Threatened	Redwing
Vanellus vanellus	Near Threatened	Northern Lapwing
Glareola nordmanni	Near Threatened	Black-winged Pratincole
Gypaetus barbatus	Near Threatened	Bearded Vulture
Gyps himalayensis	Near Threatened	Himalayan Griffon
Haematopus ostralegus	Near Threatened (Vagrant in Afghanistan)	Eurasian Oystercatcher
Limosa lapponica	Near Threatened	Bar-tailed Godwit
Limosa limosa	Near Threatened	Black-tailed Godwit
REPTILES		
Nilssonia gangetica	Endangered	Indian Softshell Turtle
Lissemys punctata	Vulnerable (Possibly extant in Afghanistan)	Indian Flapshell Turtle
Testudo horsfieldii	Vulnerable	Afghan Tortoise
Eryx johnii	Near Threatened	Sand Boa
Varanus bengalensis	Near Threatened	Bengal Monitor
AMPHIBIAN		
Afghanodon mustersi	Critically Endangered	Paghman Mountain Salamander
FISH		
Pseudoscaphi-rhynchus kaufmanni	Critically Endangered	Amu Darya Shovelnose Sturgeon
Capoetobrama kuschakewitschi	Endangered	Chu Sharpray

Species	IUCN Listing	Common Name
Tor putitora	Endangered (Possibly extant in Afghanistan)	No English common name
Cyprinus carpio	Vulnerable	Common Carp
Luciobarbus brachycephalus	Vulnerable	Aral Barbel
Luciobarbus capito	Vulnerable	Bulamai Barbel
Paraschistura punjabensis	Vulnerable (Presence uncertain in Afghanistan)	No English common name
Schistura pakistanica	Vulnerable	No English common name
Schizocypris brucei	Vulnerable	Waziristan Snowtrout
Schizothorax richardsonii	Vulnerable	Asla
INSECT		
Onychogomphus flexuosus	Vulnerable	Waved Pincertail
Parnassius autocrator	Vulnerable	Apollo Butterfly
Anormogom-phus kiritshenkoi	Near Threatened	Dragonfly, no English common name
VASCULAR PLANTS		
Crataegus necopinata	Critically Endangered (Presence uncertain in Afghanistan)	Hawthorn species
Lilium polyphyllum	Critically Endangered	White Himalayan Lily
Zygophyllum darvasicum	Critically Endangered (Presence uncertain in Afghanistan)	No English common name
Atropa acuminata	Endangered	Indian Belladonna
Malus niedzwetzkyana	Endangered	Niedzwetzky's Apple
Taxus contorta	Endangered	West Himalayan Yew
Tecomella undulata	Endangered	Desert Teak
Trillium govanianum	Endangered	Himalayan Trillium
Ephedra gerardiana	Vulnerable	Asmania
Malaxis muscifera	Vulnerable	Fly bearing Malaxis
Ulmus wallichiana	Vulnerable	Himalayan Elm
Abies spectabilis	Near Threatened	Web Fir
Allium roylei	Near Threatened	Jungli piyaz, no English common name
Carex kashmirensis	Near Threatened	Sedge, no English common name
Pinus gerardiana	Near Threatened	Chilgoza (Gerrard's) Pine
Pistacia vera	Near Threatened	Pistachio
Populus pruinosa	Near Threatened	Desert Poplar

ANNEX 4. STATUS OF PRIORITY SPECIES TO BE CONSIDERED FOR CONSERVATION ACTION (TARGET 4)

The following species are considered as priorities for targeted conservation action.

No.	Common Name	Scientific name	General situation in Afghanistan
Presence in Afghanistan confirmed recently			
1	Snow Leopard	*Panthera uncia*	Afghanistan is one of the 12 snow leopard range states. No accurate estimate of snow leopard population in Afghanistan is currently available but based on assessment of suitable habitat and extrapolations from recent abundance studies in Wakhan the population in the country has been estimated at 189-224 individuals[55]. The species is confirmed present in Badakhshan Province - Wakhan National Park hosting more than 60% of the confirmed range in Afghanistan - and Nuristan Province. It possibly still occurs in east Baghlan, north-east Kapisa, Kunar, Laghman, Panjshir, and south Takhar provinces. The main threats to snow leopards are destruction of natural prey and killing in retaliation of livestock destruction. The species is estimated to have declined in Afghanistan over the past 1-3 decades
2	Common Leopard	*Panthera pardus*	The central part of the Hindu Kush Mountain range and its offshoots to the east connecting with the lower western Himalayan range in Pakistan are the two main strongholds in Afghanistan. There is currently no estimate of population size in the country for leopards, which are said to survive in declining and fragmented sub-populations. The species has been confirmed in Bamyan, Daykundi, Farah, Ghor, Laghman, Nangarhar, Nuristan, and Paktya provinces but many areas of suitable habitat remain unexplored[56]. The main threats to leopards are destruction of natural prey, killing in retaliation of livestock destruction, and negative perception of the species by rural communities. The species is estimated to have declined in Afghanistan over the past 1-3 decades.
3	Asiatic Black Bear	*Ursus thibetanus*	In Afghanistan the distribution of the species coincides with forest distribution in the eastern part of the country where its population size is unknown. The bear has been confirmed in Kunar and Nuristan provinces, the latter being probably the largest stronghold for the species in the country, and possibly also occurs in Paktika, Paktya and Khost provinces. The main threats to Asiatic black bears are forest destruction and killing by humans in retaliation of damages to agriculture (crops, orchards, beekeeping, rarely livestock)[57]. The species is estimated to have declined in Afghanistan over the past 1-3 decades.

55. Ostrowski, S. and Moheb, Z. 2021. A population estimate for snow leopards (Panthera uncia) in Afghanistan. WCS Unpublished report, Kabul, Afghanistan, 3p.
56. Ostrowski, S. et al. 2022. Distribution and status of the Persian leopard in the east part of its range. CATnews Special Issue 15:42–49.
57. Ostrowski, S. et al. 2009. The Asiatic black bear still survives in Nuristan, Afghanistan. International Bear News (IUCN) 18:14-15.

No.	Common Name	Scientific name	General situation in Afghanistan
4	Eurasian Otter	*Lutra lutra*	The species is said to be distributed throughout the major rivers and streams between 400 – 2,900 m asl in the northern, central, and west regions of Afghanistan[58]. Historically, it has been reported in rivers and streams in Kunar, Nangarhar, Kabul, and Kandahar[59], but no recent investigations could confirm their presence in these areas. Recently, its presence has been confirmed from the upper (Wakhan District) and mid (Darwaz District) Panj River and villagers interviewed in 2010 also reported it in Zebak District, all these districts are in Badakhshan Province, in northeastern Afghanistan. Eurasian otter is among the least studied animals in Afghanistan and therefore there is currently no population estimate for the species in the country. The main threat to Eurasian otter includes hunting and unsustainable harvesting of fishes. In the past it was essentially hunted for its valuable pelt.
5	Urial	*Ovis vignei*	Urial is a wild sheep species occurring sporadically throughout the mountainous areas from northeastern Afghanistan all the way to the Central Highlands and western parts of the country. Presence of the species has recently been confirmed from Wakhan, Ishkashim and Zebak districts in Badakhshan Province, Bamyan Plateau and northern Band-e Amir in Bamyan Province, and in Kabul and Laghman provinces. There may be several subspecies of urial in Afghanistan, but in the absence of molecular data, subspecies differentiation is uncertain. Urial numbers are not known for the entirety of its range in Afghanistan, however, population estimates in 2018 confirmed the presence of around 400 urial in Wakhan National Park. The major threats to the species include poaching for meat, habitat degradation, and overgrazing of livestock. The species is estimated to have declined in Afghanistan over the past few decades and recent information of extensive poaching in 2023 suggests a high risk of extinction.
6	Argali	*Ovis ammon*	Argali are long-legged mountain sheep adapted to high elevation, open country. The subspecies found in Afghanistan (0. a. polii) is often referred to as the Marco Polo sheep. In Afghanistan, argali are largely limited to Pamirs in Wakhan National Park, but often move across borders to Tajikistan, and possibly to China and Pakistan. No reliable population estimates are available because of frequent transboundary movements. Population numbers in Afghanistan's Pamirs are fluid but range between 1,000 -1,500 animals. Argali are prized trophy animals because of their impressive horns, but there is currently no legal hunting in Afghanistan. The major threats to Afghanistan argali are overgrazing, poaching and disease transmission by domestic livestock.

58. Ostrowski, S. 2016. The Eurasian Otter Lutra lutra in Afghanistan: A review of the sparse available information. IUCN Otter Spec. Group. Bull. 33(1): 50-53.
59. Melisch, R. and Rietschel, G. 1996. The Eurasian otter Lutra lutra in Afghanistan. Bonner Zoologische Beitrage, 46, pp.367-376.

No.	Common Name	Scientific name	General situation in Afghanistan
7	Markhor	*Capra falconeri*	Markhor is the rarest Afghanistan mountain ungulate. It occurs in small patches in north and eastern Afghanistan with presence confirmed from Shar-e Buzurg and Koof Ab districts in northern Badakhshan[60] and in south central Nuristan. Three subspecies of markhor were once present in Afghanistan, although one may no longer persist. Although population numbers of the species are not known for Afghanistan, the species has declined over the past few decades. Poaching for meat is the main threat to markhor population in the country.
8	Tarim Red Deer (Bukhara red deer)	*Cervus hangul*	It is the only cervid species found in tugai forest along the Amu Darya River in northern Afghanistan. Historical records of the species include Darqad in Takhar and Imam Sahib in Kunduz Province, however, presence of the species has only been recently confirmed in the floodplains of Darqad District along the international border with Tajikistan[61]. Recent interview data suggest that the species also occurs in Kaldar District of Balkh along the international border with Uzbekistan. The species may also occur in Kunduz and Jawzjan Provinces in northern Afghanistan. The size of the Afghanistan population of Tarim Red Deer is not known. Local knowledge suggests that the presence of the species is susceptible to human disturbance across their narrow strip of habitat in northern Afghanistan. Major threats to the species include poaching for meat, trapping young ones for pets, and habitat destruction. The species is said to have severely declined in Afghanistan over the past four decades.
9	Goitered Gazelle	*Gazella subgutturosa*	The species inhabits arid plains and treeless semi-desert environments. In Afghanistan, it is said to be distributed in western Afghanistan that includes Herat in the north all the way to Kandahar in the south. Historically, it has also been reported from Qalat in Zabul province in the south and Hairatan in Balkh province in the north[62]. Although there has been no research on goitered gazelle in recent years and the population numbers are not known, this species is thought to be very rare, hunting for meat and trapping for pet trade are most likely to be the major threats to the species in Afghanistan.
10	Chinkara	*Gazella bennettii*	Chinkara are gazelles adapted to arid environments. In Afghanistan, chinkara are limited to the deserts of Kandahar, Helmand and Nimroz provinces. Chinkara are thought to be very rare in Afghanistan, but population numbers are not known. Hunting is most likely to be the major threat to the species in Afghanistan.

60. Moheb, Z. et al. 2018. Markhor and Siberian ibex occurrence and conservation in northern Afghanistan. Caprid Specialist Group Newsletter (IUCN) 1:4-7.
61. Moheb, Z. et al. 2016. Bactrian deer (Cervus elaphus bactrianus) still exist in Afghanistan. Deer Specialist Group Newsletter (IUCN) 28: 5-12.
62. Habibi, K. 2003. Mammals of Afghanistan. Zoo Outreach Organization, Coimbatore, India. 168 + iv pp.

No.	Common Name	Scientific name	General situation in Afghanistan
11	Kashmir Muskdeer	*Moschus cupreus*	The Kashmir musk deer was rediscovered in Nuristan in 2009 after having been last seen more than 60 years ago[63]. The species is found primarily in steep, remote areas of alpine scrub with scattered rock outcrops. Habitat modeling suggests that it may exist over an area of 1,300 km^2 in Nuristan, Kunar and Laghman. No population estimates are available. The primary threat is thought to be unregulated hunting for meat and for the valuable musk from the preputial gland.
12	Sociable Lapwing	*Vanellus gregarius*	This species breeds in Central Asia, mainly in Kazakhstan and is present during spring (March-April) and autumn (October-November) migration in Afghanistan[64] where it is likely to occur in relatively small aggregated flocks in the north, and more scattered as individual specimens elsewhere. Sociable Lapwing is one of several globally threatened birds that rely largely or wholly on agriculture. During migration and on the wintering grounds, the species appears to be strongly associated with areas of agriculture, particularly along rivers, such as the Amu Darya in Afghanistan. The causes of decline of the Sociable Lapwings are not fully understood, although hunting during migration is likely to be one important driver.
13	Dalmatian Pelican	*Pelecanus crispus*	This species is rarely reported in Afghanistan but as passage migrant. A resident population was reported from Hamun e Puzak[65] in the 1970's but the area has not been surveyed recently. This species might therefore only be a passage migrant in the country. As for many declining waterbird species, the Dalmatian Pelican is threatened by the destruction of wetland, often through conversion to agriculture lands. Hunting is also a main cause of decline, and a recorded threat in eastern Afghanistan[66].
14	Ferrugineous Duck	*Aythya nyroca*	This species is a rare but regular passage migrant in Afghanistan. It has been recorded in recent years in Kol-e Hashmat Khan and Pamir wetlands. It is also possible that it winters in Hamun e -Puzak but no survey was organized recently in this area to confirm it.

63. Ostrowski, S et al. 2016. Musk deer Moschus cupreus persist in the eastern forests of Afghanistan. Oryx 50:323-328.
64. Donald, P.F. et al. 2021. Migration strategy, site fidelity and population size of the globally threatened Sociable Lapwing Vanellus gregarius. Journal of Ornithology 162:349-367.
65. Rasmussen, P.C. and Anderton, J.C. 2012. Birds of South Asia, The Ripley Guide. Museum of Natural History – Smithsonian Institution. Lynx Edicions, Barcelona.
66. Mostafawi, S.N. et al. 2017. Hunting for the wealthiest threatens migrating cranes in Afghanistan. Oryx 51(4):583-584.

No.	Common Name	Scientific name	General situation in Afghanistan
15	Saker Falcon	*Falco cherrug*	This large falcon is a rare, yet typical, summer inhabitant of continental Eurasian rangelands. In Afghanistan it is assumed to breed in northern and western plains but can show up almost anywhere as a migrant or wintering visitor. The species suffers across most its distribution range from capture and trade to supply falconers from Gulf countries who prefer juvenile females. This unsustainable harvest is largely practiced in autumn where it occurs mainly in remote areas of Afghanistan's central and northern provinces. It is essential to stop this illegal harvest that drives the species to extinction.
16	Pallas's Sea Eagle	*Haliaeetus leucoryphus*	The status of this species is poorly known in Afghanistan but it has been observed in summer and autumn in wetlands in the north-east and east parts of the country[67]. The survival of this eagle species depends strongly on healthy wetlands and riparian ecosystems. Drainage and conversion of wetlands are major causes of population decline across its range.
17	Egyptian Vulture	*Neophron percnopterus*	The species is reported breeding in the country[68,69] but very little is understood on the species conservation status in the country. It might be affected by some level of persecution, intentional or accidental poisoning and hunting. Since the species leaves Afghanistan for winter, its exposure to threats in wintering areas would affect specimens breeding in Afghanistan.
18	Steppe Eagle	*Aquila nipalensis*	The species is not known breeding in Afghanistan but is a passage migrant in autumn and spring[70] possibly wintering in the south-east[71]. The species is threatened across its range by conversion of steppe habitat to agriculture, collisions and electrocution with wind turbines and power lines (mostly in its range outside Afghanistan), diclofenac poisoning and hunting. Albeit the undiscriminated hunting pressure, Afghanistan seems a haven for passage birds during migration. This species has suffered severe decline over the past 30 years.
19	Greater Spotted Eagle	*Clanga clanga*	The species is not known breeding in Afghanistan but is a passage migrant in autumn and spring[72,73] possibly wintering in the south-east[74]. The species is threatened across its range by deforestation, hybridization with lesser spotted eagle, collisions with wind turbines and electrocution with power lines (mostly in its range outside Afghanistan), poisoning and hunting. Albeit the undiscriminated hunting pressure Afghanistan seems a haven for passage birds during migration.

67. WCS Bird Record Database (2006 – 2022)
68. Rasmussen, P.C. and Anderton, J.C. 2012. Birds of South Asia, The Ripley Guide. Museum of Natural History – Smithsonian Institution. Lynx Edicions, Barcelona.
69. WCS Bird Record Database (2006 – 2022)
70. CS Bird Record Database (2006 – 2022)
71. Rasmussen, P.C. and Anderton, J.C. 2012. Birds of South Asia, The Ripley Guide. Museum of Natural History – Smithsonian Institution. Lynx Edicions, Barcelona.
72. Strick, J. et al. 2011. Satellite tracking of a rehabilitated greater spotted eagle Aquila clanga. Zoology in the Middle East 54:sup3, 103-106.
73. WCS Bird Record Database (2006 – 2022).
74. Rasmussen P.C. and Anderton J.C. 2012. Birds of South Asia, The Ripley Guide. Museum of Natural History – Smithsonian Institution. Lynx Edicions, Barcelona.

No.	Common Name	Scientific name	General situation in Afghanistan
20	Imperial Eagle	*Aquila heliacal*	The species is not known breeding in Afghanistan but is a passage migrant in autumn and spring[75] possibly wintering in the south-east[76]. The species is threatened across its range by deforestation, collisions and electrocution with wind turbines and power lines (mostly in its range outside Afghanistan), poisoning and hunting. Albeit the undiscriminated hunting pressure Afghanistan seems a relatively safe haven for passage birds during migration. This species has suffered severe decline over the past 30 years.
21	Laggar Falcon	*Falco jugger*	The species is reported breeding in the east and north-east of the of the country[77] but very little is understood on the species conservation status in the country. It might be affected by trapping as a by capture of saker falcons. Elsewhere across its distribution range it seems to be affected by the increase in pesticide use for agriculture which kills its prey species. Since the species leaves Afghanistan for winter, its exposure to threats in wintering areas would affect specimens breeding in Afghanistan.
22	Macqueen's Bustard	*Chlamydotis macqeenii*	The situation of this desert species is poorly known in Afghanistan. However, satellite telemetry has revealed that the western plains are used by many thousands of migratory birds and as winter quarters, mainly in the southwest. It is also possible that some birds reside in the southwest as an extension of resident population in Iran and in northern plains. The species suffers across all its distribution range of trade and over-hunting, which must be restricted to avoid either extinction or replacement and domestication propagated by captive-breeding programs for hunting.
23	Paghman Mountain Salamander	*Afghanodon mustersi*	This is an Afghanistan endemic species globally categorized as Critically Endangered. It was considered to exist only in a single fast-flowing, cold-water stream above the town of Paghman. A survey in 2007 found reduced stream flow, warm temperatures and no salamanders suggesting that the species may have gone extinct. However, field surveys in 2017 - 2018 confirmed that the species still exists near Paghman and appears to be present in the Panjshir, Salang and Ghorband Valleys[78]. No reliable information is available on population numbers.

75. WCS Bird Record Database (2006 – 2022).
76. Rasmussen, P.C. and Anderton, J.C. 2012. Birds of South Asia, The Ripley Guide. Museum of Natural History – Smithsonian Institution. Lynx Edicions, Barcelona.
77. Rasmussen, P.C. and Anderton, J.C. 2012. Birds of South Asia, The Ripley Guide. Museum of Natural History – Smithsonian Institution. Lynx Edicions, Barcelona.
78. https://www.rufford.org/projects/ahmad-samim-ayobi/establishing-conservation-management-for-paghman-stream-salamander-afghanodon-mustersi/

No.	Common Name	Scientific name	General situation in Afghanistan
24	Chilgoza (Gerrard's) pine	*Pinus gerardiana*	Chilgoza pine is a valuable tree species from economic and traditional medicine points of views. It has been estimated that collecting, extracting, and selling Chilgoza nuts bring on average a revenue of $1,251 USD per household per year in communities inhabiting the tree distribution range in Afghanistan[79]. Chilgoza pine occurs in dry tempered forest in the Hindu Kush-Himalayan region across the eastern part of the country often referred to as the "Eastern Forest Complex". The species has been confirmed in Nuristan, Kunar, Laghman, Nangarhar, Kapisa, Paktya, Khost, and Paktika provinces with the latter three provinces being probably the largest stronghold for the species in the country. The main threats are cutting for timber trade or firewood, unsustainable seed collection, and overgrazing that limits tree restoration[80]. The species is estimated to have declined in Afghanistan over the past 1-3 decades.
25	Wild Pistachio	*Pistacia vera*	Pistachio is a very valuable tree species for Afghanistan as nuts are major source of income for local communities inhabiting around the species distribution range. Pistachio woodlands are distributed in a strip of land from northeast to west of the country across Badakhshan, Takhar, Kunduz, Baghlan, Samangan, Balkh, Jawzjan, Sar-e Pul, Faryab, Badghis, and Herat provinces. The main threats to Pistachio woodlands have been listed as cutting trees, unsustainable seed harvest, and overgrazing. The species is estimated to have declined in Afghanistan over the past few decades.
26	Amu Darya Shovelnose Sturgeon	*Pseudoscaphirhynchus kaufmanni*	Endemic to the Amu Darya and its tributaries, now mainly found in the middle reaches of this river. There is one unclear report of a young washed-up specimen at the Friendship Bridge (connecting Termez in Uzbekistan to Hairatan in Afghanistan)[81], and survey of fish market in Hairatan in spring 2021 by the WCS team confirmed that the species was offered for sale.
Recent presence in Afghanistan unconfirmed			
27	Asiatic Cheetah	*Acinonyx jubatus venaticus*	Extremely rare subspecies of cheetah only known to survive in less than 50-100 specimens in Iran. Any vagrant specimen would only occur in the west of the country.
28	Khulan	*Equus hemionus*	No recent records, nearest resident population is in south Turkmenistan behind an international border fence.
29	White-headed Duck	*Oxyura leucocephala*	The species was reported as possible migratory breeder in the country, but no known recent records[83].

79. Shalizi, M.N. et al. 2018. Indigenous knowledge and stand characteristics of a threatened tree species in a highly insecure area: Chilgoza pine in Afghanistan. Forest Ecology and Management, 413, pp.1-8.
80. Amn, S., et al. 2019. Chilgoza pine (Pinus gerardiana) forests in Afghanistan: current status, trends in regeneration, management & protection with special reference to Nuristan Province. International Journal of Applied and Natural Sciences, 8, pp. 29-41.
81. Coad, B.W. 2014. Fishes of Afghanistan. Canadian Museum of Nature. Pensoft, Sofia-Moscow.
82. Madge, S. in litt.
83. WCS Bird Record Database (2006 – 2022).

No.	Common Name	Scientific name	General situation in Afghanistan
30	Marbled Duck	*Marmaronetta angustirostris*	The species was reported in the late 1970's as a winter visitor to Hamun e-Puzak wetlands, and occasionally seen in migration in other wetlands (e.g., Kol-e Hashmat Khan), but Hamun e-Puzak was not visited in winter by ornithologists for the past 50 years, and there are no known recent records from Afghanistan[84].
31	Siberian Crane	*Leucogeranus leucogeranus*	No known recent records[85], this species is considered extinct in the wild in west and central Asia.
32	White-rumped Vulture	*Gyps bengalensis*	No known confirmed records for the 20th and 21st centuries[86]. This species has lost nearly 90% of its population across its breeding range in south Asia due to diclofenac poisoning.
33	Great Bustard	*Otis tarda*	No known recent records in the country. It was known to winter in the extreme west of the country in the past[87], but no ornithological mission was carried out recently in this area. There is a breeding population in south Kazakhstan[88] from which perhaps several individuals winter in west Afghanistan.
34	Little Bustard	*Tetrax tetrax*	No known confirmed records for the 20th and 21st centuries[89]. There is a breeding population in south Kazakhstan[90] from which perhaps several individuals winter in west Afghanistan.
35	Red-footed Falcon	*Falco vespertinus*	Latest confirmed records dates to 1972, likely migrating birds, in the extreme west of the country[91].
36	Bengal Monitor Lizard	*Varanus bengalensis*	No confirmed recent record in Afghanistan but probably because of lack of survey in its claimed distribution range in the east and south of the country.
37	Fringebarble Sturgeon	*Acipenser nudiventris*	Included in the list of protected species of Afghanistan by AWEC but not known to be part of the fish fauna of Afghanistan[92], its nearest population is in Caspian Sea. Likely a confusion with Pseudoscaphirhynchus hermanni historically a very rare sturgeon species endemic to the Amu Darya. No known specimens of P. hermanni in Afghanistan for at least 25 years.

84. WCS Bird Record Database (2006 – 2022).
85. Mostafawi, S.N. et al. 2017. Hunting for the wealthiest threatens migrating cranes in Afghanistan. Oryx 51(4):583-584.
86. Madge, S. in litt.
87. Rasmussen, P.C. and Anderton, J.C. 2012. Birds of South Asia, The Ripley Guide. Museum of Natural History – Smithsonian Institution. Lynx Edicions, Barcelona.
88. Martin, T. E. et al. 2018. Breeding populations of Great Bustard and Little Bustard in South Kazakhstan province, Republic of Kazakhstan. Sangrouse 40: 138-143.
89. Madge, S. in litt.
90. Martin, T.E. et al. 2018. Breeding populations of Great Bustard and Little Bustard in South Kazakhstan province, Republic of Kazakhstan. Sangrouse 40: 138-143.
91. Smith, E.K. 1974. Birds in Afghanistan. Ardea 62:226-235.
92. Coad, B.W. 2014. Fishes of Afghanistan. Canadian Museum of Nature. Pensoft, Sofia-Moscow.

ANNEX 5. PROTECTED SPECIES LIST OF AFGHANISTAN DESIGNATED BY THE NATIONAL ENVIRONMENTAL PROTECTION AGENCY

Designation Year	Scientific Name	Common Name
MAMMALS		
2008	*Rhinolophus mehelyi*	Mehely's Horseshoe Bat
2008	*Capra falconeri*	Markhor
2008	*Capra sibirica*	Siberian Ibex
2008	*Ovis vignei*	Urial
2008	*Ovis ammon*	Argali
2008	*Moschus cupreus*	Kashmir Muskdeer
2008	*Lepus capensis*	Cape Hare
2008	*Vulpes corsac*	Corsac Fox
2008	*Vulpes cana*	Blanford's Fox
2008	*Canis lupus*	Wolf
2008	*Ursus thibetanus*	Asiatic Black Bear
2008	*Ursus arctos*	Brown Bear
2008	*Caracal caracal*	Caracal
2008	*Panthera pardus*	Common Leopard
2008	*Panthera uncia*	Snow Leopard
2008	*Acinonyx jubatus*	Cheetah
2008	*Felis chaus*	Jungle Cat
2008	*Felis silvestris*	Wild Cat
2008	*Prionailurus bengalensis*	Leopard Cat
2008	*Lynx lynx*	Eurasian Lynx
2008	*Otocolobus manul*	Pallas's Cat
2009	*Barbastella leucomelas*	Eastern Barbastelle
2009	*Martes foina*	Stone Marten
2009	*Hyaena hyaena*	Striped Hyaena
2009	*Gazella subgutturosa*	Goitered Gazelle
2009	*Gazella bennettii*	Indian Gazelle

Designation Year	Scientific Name	Common Name
2009	*Cervus elaphus*	Tarim Red Deer
2010	*Pipistrellus kuhlii*	Kuhl's Pipistrelle
2010	*Pipistrellus savii*	Savi's Pipistrelle
2010	*Pipistrellus coromandra*	Coromandel Pipistrelle
2010	*Pipistrellus javanicus*	Javan Pipistrelle
2010	*Pipistrellus pipistrellus*	Common Pipistrelle
2010	*Pipistrellus tenuis*	Least Pipistrelle
2010	*Rhinolophus hipposideros*	Lesser Horseshoe Bat
2010	*Rhinolophus ferrumequinum*	Greater Horseshoe Bat
2010	*Rhinopoma hardwickii*	Lesser Mouse-tailed Bat
2010	*Rhinolophus lepidus*	Blyth's Horseshoe Bat
2010	*Rhinopoma muscatellum*	Small Mouse-tailed Bat
2010	*Rhinopoma microphyllum*	Greater Mouse Tailed Bat
2010	*Rhinolophus blasii*	Blasius' Horseshoe Bat
2010	*Rhinolophus bocharicus*	Bokhara Horseshoe Bat
2010	*Myotis bucharensis*	Bokhara Whiskered Bat
2010	*Myotis formosus*	Hodgson's Bat
2010	*Myotis muricola*	Nepalese Whiskered Bat
2010	*Myotis bechsteinii*	Bechstein's Myotis
2010	*Myotis blythii*	Lesser Mouse-eared Bat
2010	*Myotis nipalensis*	Nepal Myotis
2010	*Myotis emarginatus*	Geoffroy's Bat
2010	*Myotis longipes*	Kashmir Cave Bat
2010	*Eptesicus gobiensis*	Gobi Big Brown Bat
2010	*Eptesicus serotinus*	Serotine Bat
2010	*Eptesicus nasutus*	Sind Serotine Bat
2010	*Eptesicus bottae*	Botta's Serotine
2010	*Nyctalus leisleri*	Lesser Noctule
2010	*Nyctalus montanus*	Mountain Noctule
2010	*Miniopterus fuliginosus*	Eastern Bent-winged Bat

Designation Year	Scientific Name	Common Name
2010	*Miniopterus schreibersii*	Schreiber's Long-fingered Bat
2010	*Tadarida aegyptiaca*	Egyptian Free-tailed Bat
2010	*Tadarida teniotis*	European Free-tailed Bat
2010	*Vespertilio murinus*	Particoloured Bat
2010	*Otonycteris hemprichii*	Desert Long-eared Bat
2010	*Taphozous nudiventris*	Naked-rumped Tomb Bat
2010	*Scotophilus heathii*	Greater Asiatic Yellow House Bat
2010	*Hipposideros fulvus*	Fulvus Leaf-nosed Bat
2010	*Asellia tridens*	Geoffroy's Trident Leaf-nosed Bat
2010	*Megaderma lyra*	Greater False Vampire
2010	*Eoglaucomys fimbriatus*	Small Kashmir Flying Squirrel
2010	*Petaurista petaurista*	Common Giant Flying Squirrel
2010	*Vormela peregusna*	Marbled Polecat
2010	*Lutra lutra*	Otter
2010	*Equus hemionus*	Asiatic Wild Ass
2010	*Vulpes rueppellii*	Ruppell's Fox
2010	*Canis aureus*	Golden Jackal
2010	*Felis margarita*	Sand Cat
2015	*Funambulus pennantii*	Northern Palm Squirrel
2015	*Martes flavigula*	Yellow-throated Marten
BIRDS		
2008	*Falco cherrug*	Saker Falcon
2008	*Grus leucogeranus*	Siberian Crane
2008	*Phoenicopterus roseus*	Greater Flamingo
2008	*Chlamydotis macqueenii*	Macqueen's Bustard
2009	*Haliaeetus leucoryphus*	Pallas's Fish Eagle
2009	*Aquila heliaca*	Eastern Imperial Eagle
2009	*Falco naumanni*	Lesser Kestrel
2009	*Neophron percnopterus*	Egyptian Vulture
2009	*Gyps bengalensis*	White-rumped Vulture

Designation Year	Scientific Name	Common Name
2009	*Oxyura leucocephala*	White-headed Duck
2009	*Marmaronetta angustirostris*	Marbled Teal
2009	*Vanellus gregarius*	Sociable Lapwing
2009	*Acrocephalus orinus*	Large-billed Reed-Warbler
2009	*Pelecanus crispus*	Dalmatian Pelican
2010	*Haliaeetus albicilla*	White-tailed Sea-eagle
2010	*Hieraaetus fasciatus*	Bonelli's Eagle
2010	*Hieraaetus pennatus*	Booted Eagle
2010	*Aquila chrysaetos*	Golden Eagle
2010	*Aquila nipalensis*	Steppe Eagle
2010	*Clanga clanga*	Greater Spotted Eagle
2010	*Circaetus gallicus*	Short-toed Snake-eagle
2010	*Falco jugger*	Laggar Falcon
2010	*Falco peregrinus*	Peregrine Falcon
2010	*Falco pelegrinoides*	Barbary Falcon
2010	*Falco tinnunculus*	Common Kestrel
2010	*Falco columbarius*	Merlin
2010	*Falco vespertinus*	Red-footed Falcon
2010	*Falco subbuteo*	Eurasian Hobby
2010	*Circus pygargus*	Montagu's Harrier
2010	*Circus macrourus*	Pallid Harrier
2010	*Circus cyaneus*	Northern Harrier
2010	*Circus aeruginosus*	Western Marsh Harrier
2010	*Milvus migrans*	Black Kite
2010	*Milvus lineatus*	Black-eared Kite
2010	*Buteo rufinus*	Long-legged Buzzard
2010	*Buteo buteo*	Common Buzzard
2010	*Accipiter nisus*	Sparrowhawk
2010	*Accipiter badius*	Shikra
2010	*Pandion haliaetus*	Osprey

Designation Year	Scientific Name	Common Name
2010	*Aegypius monachus*	Cinereous Vulture
2010	*Gyps himalayensis*	Himalayan Vulture
2010	*Gyps fulvus*	Griffon Vulture
2010	*Gypaetus barbatus*	Lammergeier
2010	*Asio flammeus*	Short-eared Owl
2010	*Asio otus*	Long-eared Owl
2010	*Bubo bubo*	Eurasian Eagle Owl
2010	*Athene noctua*	Little Owl
2010	*Glaucidium brodiei*	Collared Owl
2010	*Otus brucei*	Pallid Scops Owl
2010	*Otus scops*	Common Scops Owl
2010	*Strix aluco*	Tawny Owl
2010	*Anas Formosa*	Baikal Teal
2010	*Aythya nyroca*	Ferruginous Duck
2010	*Pelecanus onocrotalus*	Great White Pelican
2015	*Otis tarda*	Great Bustard
2015	*Lophophorus impejanus*	Himalayan Monal
2015	*Montifringilla theresae*	Afghan Snowfinch
REPTILES		
2010	*Testudo horsfieldii*	Afghan Tortoise
2015	*Eublepharis macularius*	Leopard Gecko
2015	*Uromastyx hardwickii*	Indian Spiny-tailed Lizard
2015	*Varanus bengalensis*	Bengal Monitor Lizard
AMPHIBIAN		
2008	*Afghanodon mustersi*	Paghman Mountain Salamander
FISH		
2010	*Pseudoscaphirhynchus kaufmanni*	Amu Darya Shovelnose Sturgeon
2015	*Acipenser nudiventris*	Fringebarbel Sturgeon

Designation Year	Scientific Name	Common Name
INSECT		
2008	*Parnassius autocrator*	Apollo (Pamir) Butterfly
PLANTS		
2008	*Corydalis hindukushensis*	No common name
2008	*Corydalis adiantifolia*	No common name
2009	*Ulmus wallichiana*	Himalayan Elm
2009	*Abies spectabilis*	East Himalayan Fir
2009	*Taxus contorta*	Himalayan Yew
2010	*Pinus gerardiana*	Jalghoza Pine
2010	*Pinus wallichiana*	Himalayan White Pine
2015	*Dioscorea deltoidea*	Elephant's Foot

ANNEX 6. LIST OF ALIEN SPECIES IN AFGHANISTAN

The following 70 alien species are present in Afghanistan [93].

#	Scientific name
	MAMMAL
1	*Cervus elaphus* (Linnaeus, 1758)
	AMPHIBIAN
2	*Bufotes viridis* (Laurenti, 1768)
	FISH
3	*Ballerus ballerus* (Linnaeus, 1758)
4	*Carassius auratus* (Linnaeus, 1758)
5	*Ctenopharyngodon idella* (Valenciennes, 1844)
6	*Cyprinus carpio* (Linnaeus, 1758)
7	*Gambusia affinis* (Baird & Girard, 1853)
8	*Gambusia holbrooki* (Girard, 1859)
9	*Hemiculter leucisculus* (Basilewsky, 1855)
10	*Hypophthalmichthys molitrix* (Valenciennes, 1844)
11	*Hypophthalmichthys nobilis* (Richardson, 1845)
12	*Oncorhynchus mykiss* (Walbaum, 1792)
13	*Oryzias latipes* (Temminck & Schlegel, 1846)
14	*Pseudorasbora parva* (Temminck & Schlegel, 1846)
15	*Rhinogobius similis* (Gill, 1859)
16	*Rhodeus sinensis* (Günther, 1868)
	INSECT
17	*Apis mellifera* (Linnaeus, 1758)

#	Scientific name
	VASCULAR PLANTS
18	*Acacia modesta* (Wall.)
19	*Acer oblongum* (Wall.) (Ex DC.)
20	*Acroptilon repens* (L.) (DC.)
21	*Ailanthus excelsa* (Roxb.)
22	*Ailanthus glandulosa* (Desf.)
23	*Albizia julibrissin* (Durazz.)
24	*Albizia lebbeck* (L.) (Benth.)
25	*Amygdalus communis* (L.)
26	*Araucaria japonica*
27	*Bombax ceiba* (L.)
28	*Bougainvillea glabra* (Choisy)
29	*Callistemon viminalis* (G.Don)
30	*Cassia fistula* (L.)
31	*Cedrela toona* (Roxb.) (Ex Rottl. & Willd.)
32	*Cercis griffithii* (Boiss.)
33	*Conyza bonariensis* (L.) (Cronq.)
34	*Conyza sumatrensis* (Retz.) (E.H.Walker)
35	*Cryptomeria japonica* (D.Don)
36	*Cupressus arizonica* (Greene)
37	*Cuscuta campestris* (Yunck.)

93. Sediqi E, Maiwandi S, Modaqiq W, Wong L J, Pagad S 2020. Global Register of Introduced and Invasive Species - Afghanistan. v1.15. Invasive Species Specialist Group ISSG. Dataset/Checklist. https://cloud.gbif.org/griis/resource?r=afghanistan_griis_gbif&v=1.15

#	Scientific name
38	*Cynodon dactylon* (L.) (Pers.)
39	*Cyperus rotundus* (L.)
40	*Dodonaea viscosa* (Jacq.)
41	*Echinochloa crus-galli* (L.) (P.Beauv.)
42	*Elaeagnus umbellata* (C.P.Thunb.) (Ex A.Murray)
43	*Ficus benghalensis* (L.)
44	*Ficus religiosa* (L.)
45	*Fraxinus floribunda* (Wall.)
46	*Gleditsia triacanthos* (L.)
47	*Grevillea robusta* (A.Cunn.) (Ex R.Br.)
48	*Hibiscus mutabilis* (L.)
49	*Hibiscus syriacus* (L.)
50	*Imperata cylindrica* (L.) (P.Beauv.)
51	*Jasminum humile* (Heyne)
52	*Lamium amplexicaule* (L.)
53	*Lantana camara* (L.)
54	*Lolium temulentum* (L.)

#	Scientific name
55	*Mangifera indica* (L.)
56	*Melia azedarach* (L.)
57	*Pinus halepensis* (Mill.)
58	*Pinus roxburghii* (Sarg.)
59	*Piper nigrum* (L.)
60	*Ricinus communis* (L.)
61	*Robinia pseudoacacia* (L.)
62	*Rosa moschata* (Herrm.)
63	*Syringa emodi* (Wall.) (Ex Royle)
64	*Syzygium cumini* (L.) (Skeels)
65	*Taraxacum croceum* (Dahlst.)
66	*Thuja orientalis* (L.)
67	*Toona ciliata* (M.) (Roem.)
68	*Ulmus wallichiana* (Planch.)
69	*Xanthium spinosum* (L.)
70	*Ziziphus mauritiana* (Lam.)

The National Biodiversity Strategy and Action Plan (NBSAP) for Afghanistan outlines a comprehensive framework to conserve and sustainably manage the country's rich biodiversity. This plan recognizes the critical role that biodiversity plays in supporting ecosystem functions, providing livelihood opportunities, and contributing to the overall well-being of Afghan communities. It aims to address the key challenges and threats facing sustainable use and ensuring the equitable sharing of benefits.