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CONVENTION ON MIGRATORY SPECIES

MEMORANDUM OF UNDERSTANDING CONCERNING CONSERVATION AND RESTORATION OF THE BUKHARA DEER

ACTION PLAN TO SECURE HABITAT CONNECTIVITY FOR THE BUKHARA DEER IN THE LOWER AMU DARYA LANDSCAPE

The revision of this document (Rev.1) was prepared to replace the term ‘economic zone’ in Activities 2.6 and 4.4 with ‘transition zone’, which is the correct term used to describe the part of the Lower Amu Darya Biosphere Reserve designated for economic and other anthropogenic activities that do not cause harm to the natural features and ecosystems of the reserve in accordance with the national legislation of the Republic of Uzbekistan.

ACTION PLAN TO SECURE HABITAT CONNECTIVITY FOR THE BUKHARA DEER IN THE LOWER AMU DARYA LANDSCAPE

1. The Bukhara deer (*Cervus elaphus yarkandensis*)[1] is listed on Appendices I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS). Parties to CMS that are Range States of species listed in Appendix I shall prohibit the taking of such species from the wild; and shall endeavour to conserve and, where possible and appropriate, restore those habitats of the species which are of importance in removing the species from danger of extinction; and prevent, eliminate, compensate for or minimize, as appropriate, the adverse impacts of activities or obstacles that seriously impede or prevent the migration of the species.

2. The Memorandum of Understanding on the Conservation and Restoration of the Bukhara Deer (hereinafter referred to as the Bukhara Deer MOU), concluded within the framework of CMS, together with the associated Bukhara Deer Work Programme for 2025–2032, provides the basis for international cooperation among Range States. Furthermore, Resolution 11.24 (Rev.COP15) on the Central Asian Mammals Initiative (CAMI) and the associated Work Programme for 2026–2032 define the framework for regional cooperation to address threats common to many mammal species in the region, including the Bukhara deer. This Work Programme includes a number of activities aimed at reducing threats such as the disruption of ecological connectivity, human-wildlife conflicts, poaching, the genetic vulnerability of isolated populations and others, as well as activities to attract necessary financial resources to fulfill the relevant obligations (activities 2.1–2.5 of CAMI WP).

3. The most recent comprehensive assessment of the abundance, distribution, and conservation status of Bukhara deer across their range was conducted as part of the Overview Report on the Conservation Status and Implementation of the Bukhara Deer MOU (Overview Report), reviewed and endorsed by the MOU Signatories at their Third Meeting, held on September 10–11, 2024, in Almaty, Kazakhstan. According to the Overview Report, the largest population of Bukhara deer currently inhabits the Badai-Tugai forest in the Lower Amu Darya State Biosphere Reserve (LABR) in Uzbekistan. The information presented in this report covers population numbers, status, and distribution of Bukhara deer, including the population in the lower Amu Darya landscape. It served as the basis for identifying priority conservation measures for the Bukhara Deer Work Program 2025–2032, including those aiming to restore the connectivity of the species' habitats. Work Program activities of direct relevance to this document are presented in Appendix I.

[1]The CMS uses the taxonomy of Wilson and Reeder's Mammal Species of the World (2005), which is outdated; the IUCN currently uses the species name *Cervus hanglu bactrianus.*

4. Despite significant growth and stabilization of the Bukhara deer population in the LABR as a result of implemented conservation measures, a number of significant challenges remain. These include habitat loss and fragmentation, barriers to migration and natural dispersal, poaching, human-wildlife conflict, locally high population density and genetic vulnerability due to a disrupted connectivity between available habitats. High density of animals in a limited area can also increase the risk of disease outbreaks and contribute to further habitat degradation.

5. At the same time, part of the LABR territory, specifically the Nazarkhan cluster, is located in close proximity to the border with Turkmenistan. In Turkmenistan, the lower Amu Darya landscape also contains habitats potentially suitable for the Bukhara deer, which, if favorable conditions persist, could be repopulated through natural dispersal. Therefore, maintaining and restoring ecological connectivity between suitable habitats in the lower reaches of the Amu Darya could facilitate the natural dispersal of Bukhara deer, reduce spatial isolation of the population, and ensure the long-term conservation of the species in this transboundary region.

6. Therefore, preserving and restoring the ecological connectivity of habitats in the Lower Amu Darya landscape, including in a transboundary context, is a key prerequisite for the long-term conservation and sustainable recovery of this Bukhara deer population. Addressing existing problems requires a comprehensive and coordinated approach that includes preserving and restoring key habitats, creating conditions for natural dispersal, mitigating the impact of existing barriers, and improving monitoring of the population and its habitats.

7. To this end, the Action Plan for Securing Habitat Connectivity for Bukhara Deer in the Lower Amu Darya Landscape (abbreviated as the Lower Amu Darya Connectivity Action Plan, or LACAP) has been developed. It defines agreed-upon priority measures to maintain and restore habitat connectivity for the species. The plan is intended to serve as a basis for coordinating the actions of relevant government agencies, protected area administrations, scientific and environmental organizations, and other stakeholders in Uzbekistan and Turkmenistan, as well as for identifying resource needs and raising funding for the implementation of the activities.

8. This Action Plan consists of eight thematic sections, each related to the restoration of habitat connectivity: 1) monitoring, research, and capacity building; 2) creation of ecological corridors; 3) management measures in deer habitats; 4) prevention of human-Bukhara deer conflicts and overgrazing; 5) relocation of Bukhara deer; 6) combating poaching and feral dogs; 7) education, public awareness, and tourism as well as 8) coordinaiton and resource mobilization.

9. Since the Bukhara deer is listed on Appendix I of CMS, its removal from the wild is prohibited under the provisions of the Convention. Therefore, measures involving the removal of the Bukhara deer are not included in this Plan. Any exceptions to this prohibition may be considered only in exceptional cases under the conditions stipulated in paragraph 5 of Article III of the Convention.

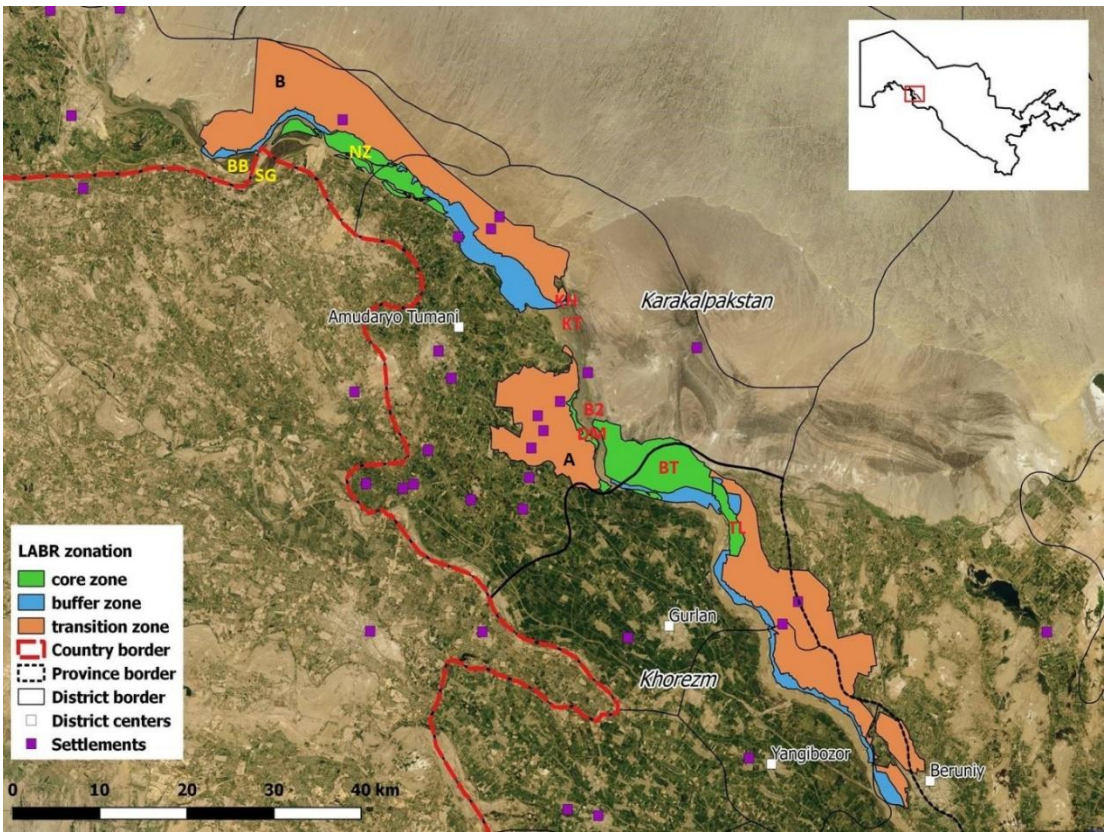

Fig. 1 LABR and adjacent territories (A — southern sector of LABR, B — northern sector of LABR): TL — Tallyk, BT — Badai-Tugai, DM — Jumurtau, B2 — tugai to the north of Badai-Tugai, KT — Karatau, KH — Khodjakul, NZ — Nazarkhan, BB — Bekbai, SG — Sarygavdyr)

Action Plan to Secure Habitat Connectivity for the Bukhara Deer in the Lower Amu Darya Landscape for 2027–2032

Objective: To ensure a more even distribution of Bukhara deer within the Lower Amu Darya State Biosphere Reserve (LABR) and adjacent areas by improving habitat conditions, mitigating existing threats, restoring and maintaining habitat connectivity to facilitate natural movements of animals through improved water management, grazing management, protection of connected habitats, and the creation of ecological corridors, including between Uzbekistan and Turkmenistan.

	Events	Priority[2]	Urgency[3]	Responsible organization	Partners	Connection with other projects and programs
1	**Monitoring, research and capacity building**					
1.1	Collect data on the territory of LABR (Badai-Tugai, Tallyk, Jumurtau sections; as well as in the tugai north of the Badai-Tugai section, in the tugai area under Mount Karatau, in the Khodzhakul forest area (leskhoz)), and other relevant territories of forest areas and protected areas (PAs) of the Republic of Karakalpakstan and Khorezm region in order to determine: a) population size[4], sex ratio, seasonal and daily activity using vehicle and foot route surveys, boat surveys, male roar counts during the rutting season, installation of a network of camera traps, and SMART patrolling; b) animal movements, including natural dispersal into adjacent forestry enterprise areas, state land reserves, and agricultural lands, c) migration patterns and barriers to migration using appropriate technologies (including genetic analysis, camera traps, satellite tracking, remote sensing, SMART patrolling).	1	a) annually; b) and c) to be carried out in the near future and then every 2 years	LABR, other relevant protected areas, the Department of Protected Areas of the National Committee for Ecology and Climate Change of the Republic of Uzbekistan (NCECC)	Institute of Zoology, non-governmental non-profit organizations (NNOs) FAO Uzbekistan, International Union for the Conservation of Nature (IUCN)	CAMI Work program (WP) 2026-2032 10.1 FOLUR Uzbekistan[5]

[2] 1- high, 2- medium, 3- low
[3] 1: 1-2 years, 2:3-4 years, 3:5-6 years
[4] For methodology, see Cornelis et al. (2020), "Population assessment of the Bukhara deer (*Cervus hanglu bactrianus)* in the Lower Amu Darya State Biosphere Reserve: mission report"; Danilkin, A. A., "Deer (Cervidae)" (Series "Mammals of Russia and Adjacent Regions", Nauka, 1999)
[5] GEF- funded project "Food System, Land Use and Restoration Impact Program in Uzbekistan"

	Events	Priority[2]	Urgency[3]	Responsible organization	Partners	Connection with other projects and programs
1.2	Store data in appropriate databases and use them to inform decision-making to maintain habitat connectivity and migratory behaviour of the Bukhara deer.	1	2	NCECC	LABR, NNO	CAMI WP 10.5, 10.6
1.3	Conduct a climate vulnerability assessment of the LABR population and adjacent territories, taking into account the current and projected hydrological situation and river dynamics in the Bukhara deer habitat, based on collected information on the habitats and distribution of animals, climate change forecasts, water use plans, and take the results into account when planning conservation measures.	2	2	LABR, NCECC, Ministry of Water Resources (MWR) of the Republic of Karakalpakstan, MWR of the Republic of Uzbekistan (RUz), Council of Ministers of the Republic of Karakalpakstan, Ministry of Agriculture (MA) of RUz	NNO, group of experts, Academy of Sciences (ASRUz)	CAMI WP 10.8
1.4	Determine the ecological carrying capacity of the LABR, adjacent territories and potential habitats for the Bukhara deer (the Nazarkhan cluster of the LABR, the Orolbuyi and Khorezm national nature parks, the Akpetki cluster of the Sudochie-Akpetki nature reserve, etc.) using a comprehensive methodology that includes: a) Geobotanical inventory and assessment of the forage availability; b) Remote sensing using GIS technologies: satellite monitoring (NDVI) assessment of the status and dynamics of tugai vegetation by season; c) Assessment of functional carrying capacity (population density, protective habitat conditions, availability of watering places, rutting grounds); d) Assessment of the intensity of pasture use and its impact on carrying capacity; e) Assessment of anthropogenic impact on the environment.	1	1	Academy of Sciences of the Republic of Uzbekistan (ASRUz)	NNOs with projects, UzbekCosmos, Ministry of Agriculture of the Republic of Uzbekistan	Work program for the Bukhara deer 2025-2032 (BDWP) 2.8
1.5	Strengthen livestock disease control measures and monitor the health and disease outbreaks of Bukhara deer in the LABR (documentation, examination, sampling of wild animal carcasses).	1	1	Veterinary Service Committee, NCECC Department of Protected Areas (PAs), MA RUz	LABR	CAMI WP 9.6
1.6	Conduct a comprehensive assessment of the captive breeding program for Bukhara deer in the LABR	1	2	NCECC	ASRUz	

	Events	Priority[2]	Urgency[3]	Responsible organization	Partners	Connection with other projects and programs
	territory, in terms of conservation objectives, the quality of the genetic stock, facility conditions, and the cost-benefit ratio, and identify measures to optimize the captive facilities which should be used for future re-introduction in the wild.					
1.7	Identify capacity building needs in terms of scientific and technical capacity of those agencies responsible for planning and implementing the measures of this action plan, as well as for their implementation.	1	1	ASRUz	NCECC, international organizations	
1.8	Ensure transparency and public availability of the results of the analysis of collected data through open online access to publications, maps, audio and video, and other results in accordance with the Arhus Convention.	2	2	LABR, NCECC ASRUz	NNOs, IUCN and other international organizations	FOLUR Uzbekistan
2	**Creation of ecological corridors**					
2.1	Create GIS maps which show optimal, sub-equivalent and unsuitable zones for Bukhara deer, as well as ecological corridors for the purpose of land use planning, environmental measures and deer resettlement.	1	1	ASRUz	NNOs, universities	
2.2	Identify suitable habitats and potential migration routes in Uzbekistan and adjacent areas in Turkmenistan.	1	1	NCECC (regional committees), ASRUz	NNOs, universities, the Department of Environmental Protection of the Dashoguz Velayat (Turkmenistan), Forest area management (leskhoz) of the Dashoguz Velayat	
2.3	Based on actions 2.1-2.2, create a new transboundary group of Bukhara deer between the Nazarkhan site (part of LABR), the Kipchak forested area (Bekbai site (UZB)) and the Sarygavdir tugai forested area (TKM) by translocating deer from Badai- Tugai to Nazarkhan (see translocation measures below).	1	2	NCECC RUz, the Ministry of Environmental Protection (MEP) of Turkmenistan in cooperation with protected areas and	NNOs, universities, civil society organizations, international organizations, the Ministries of Foreign	CAMI WP 5.6, BDWP 2.1

	Events	Priority[2]	Urgency[3]	Responsible organization	Partners	Connection with other projects and programs
				forest area management (leskhoz)	Affairs of Turkmenistan and Uzbekistan, the Border Services of Turkmenistan and Uzbekistan, relevant forest area and protected area management	
2.4	Establish a working group with the participation of multiple stakeholders to coordinate further work on the establishment of the transboundary group, including securing habitat connectivity (2.5, 2.6), restoration of coastal tugai forests, ensuring sustainable grazing and rational water use, involvement of local communities and other aspects, as necessary.	1	1	NCECC RUz and MEP of Turkmenistan	International organizations, NNOs, the Ministries of Foreign Affairs of Turkmenistan and Uzbekistan, and the Border Services of Turkmenistan and Uzbekistan	
2.5	Ensure safe migration of Bukhara deer between Turkmenistan and Uzbekistan: a) Identify and establish a protection regime and protect continuous strips of tugai vegetation in the lower reaches of the Amu Darya along the riverbed, linking the core of the LABR with other suitable sites within Uzbekistan and Turkmenistan; b) Develop, coordinate and implement a system of measures to prevent injury and death of deer during cross-border migration between Turkmenistan and Uzbekistan in the lower Amu Darya landscape	1	2	NCECC RUz NCECC and the MEP of Turkmenistan, working group of 2.4	NNOs, universities, international organizations, border services	BDWP 2.1, CAMI WP 3.6
2.6	Ensure safe migration of Bukhara deer in Uzbekistan: a) Enable safe passage for Bukhara deer crossing canals and agricultural lands between forest areas in the buffer and transition zones of the LABR; b) Study the impact of the railway and road in the foothills of Sultanuwais on seasonal spring migrations;	1	1	NCECC RUz	LABR, Institute of Zoology of the Republic of Uzbekistan, Ministry of Internal Affairs of the Republic of Uzbekistan	CAMI WP 3.6

	Events	Priority[2]	Urgency[3]	Responsible organization	Partners	Connection with other projects and programs
	c) Ensure the possibility of safe crossings of roads, where necessary (including by installing road signs to limit vehicle speed).					
2.7	Explore the possibility of creating ecological corridors to maintain habitat connectivity for the Bukhara deer, including consultations with local communities, land users, and other stakeholders.	1	2	NCECC RUz, NNO, ASRUz	International organizations	CAMI WP 3.5
2.8	Develop draft amendments to the Law of the Republic of Uzbekistan "On Protected Natural Areas" that will define: the official status of an ecological corridor; the procedure for establishing restrictions on anthropogenic activities within an ecological corridor; the protection regime and the authorities responsible for protection and for ensuring compliance with environmental restrictions.	1	3	NCECC RUz	ASRUz, international organizations, NNOs	CAMI WP 3.5
2.9	Assess the status of potential habitats for Bukhara deer in the tugai forests and forested areas adjacent to the LABR in Turkmenistan and implement measures to ensure suitable habitat availability for the creation of a transboundary group of Bukhara deer and of the ecological corridor.	1	1	MEP of Turkmenistan	NNOs, international organizations	
3	**Habitat management measures**					
3.1	Based on 1.1, 1.3 and 2.2, and taking into account ecological connectivity, identify priority areas of Bukhara deer habitat for restoration and conservation, develop and implement respective measures.	1	1	NCECC, LABR and ASRUz	Other relevant state bodies of the Republic of Uzbekistan, international organizations, NNOs	
3.2	Provide hydrological expertise to study the seasonal distribution of surface water, groundwater and underground water levels and develop recommendations to ensure a regular water supply to the LABR.	1	1	NCECC, MWR, Ministry of Geology of the Republic of Uzbekistan	Hokimiyat of Beruni District	
3.3	Based on 3.2, calculate the needs and obtain permission 'for special water use' to ensure water supply	1	1	NCECC RUz, LABR, MWR of Karakalpakstan		

	Events	Priority[2]	Urgency[3]	Responsible organization	Partners	Connection with other projects and programs
	to LABR from the Ministry of Water Resources of the Republic of Karakalpakstan.					
3.4	Organize additional watering places in the LABR - in the buffer zone and along the border of the protected area, in adjacent forested areas, as well as in the planned ecological corridors, which will lead to a more even distribution of deer across the territory of the biosphere reserve and will serve as an incentive for animal dispersal to new territories.	2	2	NCECC RUz, MWR Karakalpakstan, LABR	ASRUz	CAMI WP 9.5
3.5	Due to already observed dispersal of deer into these territories and in order to improve their protection, consider the possibility of adding additional territories to the LABR: a) the entire channel of the Amu Darya river near LABR; b) tugai forest area located under Mount Karatau and Mount Karatau itself (or part of it); c) Khozhakul section of the Kipchak leskhoz; d) the territory of the Beruni leskhoz, south of Tallyk tugai.	1	2	NCECC RUz, Hokimiyats	ASRUz, LABR	
3.6	Establish forage fields in the LABR—in the buffer zone and along the border of the protected area—to reduce pressure on natural vegetation, keep deer within the reserve, and thus reduce the risk of deer grazing on agricultural fields. Local residents could be contracted to grow forage crops for the reserve, creating new jobs.	2	1	NCECC RUz, LABR, Hokimyat of Beruni and Amudarya districts	NNO, ASRUz, Local farms and agricultural clusters	IKI Amu Darya [6]project
3.7	Continuously monitor and control emissions from industrial enterprises ensuring compliance with the maximal allowed concentration, analyze the impact of quarries for the extraction of non-metallic materials on the habitat of the largest population of Bukhara deer in the LABR (in particular, in the Badai-Tugai and Dzhumurtau areas), and develop, coordinate and implement measures to reduce their negative impact on	1	1	NCECC RUz	ASRUz, NNO, international organizations	BDWP 2.10

[6]Project "Ecosystem-Based Land Use and Ecosystem Conservation in the Lower Reaches of the Amu Darya River" 2018-2020

	Events	Priority[2]	Urgency[3]	Responsible organization	Partners	Connection with other projects and programs
	Bukhara deer and on the development of ecotourism in the LABR.					
3.8	Based on previous research, create an environmental risk map highlighting critical degradation zones of tugai ecosystems; develop requirements for industrial activities: installation of modern filters, strict quiet hours during the calving season (April–June); and relocate the industrial activities to another area outside the tugai forest zone.	1	2	NCECC RUz, LABR	ASRUz, NNOs, international organizations	
3.9	Develop and conduct information campaigns for the management and employees of industrial enterprises around LABR.	2	2	NNO, LABR	NCECC RUz	
3.10	Require environmental specialists at industrial enterprises in Bukhara deer habitats to regularly undergo refresher capacity-building courses with respect to tugai forest and Bukhara deer conservation.	1	2	NCECC RUz		
3.11	Strengthen fire prevention measures and improve the material and technical base for fighting fires in LABR and adjacent habitats.	1	1	NCECC RUz, LABR	United Nations Development Programme (UNDP), WWF	
4	**Preventing conflict between deer and humans**					
4.1	Conduct a workshop on landscape-level land-use planning in Bukhara deer habitats and adjacent areas, engaging stakeholders from various agencies and sectors, including local communities, to support sustainable pasture management and prevent degradation of tugai forests.	1	2	NCECC RUz, LABR, NNO	ASRUz, international organizations	CAMI WP 8.2
4.2	Develop a grazing management plan with the participation of the biosphere reserve advisory committee[7] and introduce grazing restrictions to prevent degradation of existing and potential habitats of Bukhara	1	2	Local authorities of the Republic of Uzbekistan, rural citizens' assembly (RCA), farmers, women,	MARUz, international organizations	

[7] Includes representatives of local communities

	Events	Priority[2]	Urgency[3]	Responsible organization	Partners	Connection with other projects and programs
	deer, as well as to prevent the transmission of diseases between cattle and deer.			youth, NCECC RUz, NNOs		
4.3	Continue working with local communities to identify existing and potential conflicts between humans and Bukhara deer and conduct a scientific assessment of the impact of Bukhara deer on farms and other private lands.	2	3	LABR, NNO, ASRUz	Species Survival Commission, Conflict and Coexistence Specialist Group (SSC) of the IUCN	CAMI WP 8.5
4.4	Support and expand projects to improve the well-being of local communities based on incentives related to the protection of tugai forests and their inhabitants (e.g. ecotourism, community forestry in transition zones, fruit growing using traditional methods, etc.) and encourage partnerships between local communities and economic agents that can support the sale of traditional goods and ecotourism that does not harm the Bukhara deer and its habitat.	1	2	NNOs, international organizations	NCECC, LABR	CAMI WP 8.9
4.5	Develop and test practical measures to prevent or reduce damage caused by the Bukhara deer to agricultural crops, hayfields, pastures and other objects, with subsequent evaluation of the effectiveness of the measures applied.	1	2	ASRUz, NNOs, international organizations	IUCN KVVGS	CAMI WP 8.6
4.6	Restore protective green barriers consisting of tree rows and tree plantations along the boundary between the LABR and adjacent farm fields and pastures, and ensure these trees have adequate water and maintenance over the long term, with the involvement of local communities.	2	2	NCECC RUz, MWR of the Republic of Karakalpakstan, Hokimiyats	Local communities	CAMI WP 8.6
5	**Translocation of Bukhara deer**					
5.1	Taking into account the calculated ecological capacity of the Nazarkhan area of LABR, the Orolbuyi and Khorezm NNPs, and the Akpetki area of the Sudochie-Akpetki nature reserve (see 1.4), determine the feasibility of restoring Bukhara deer populations in these territories and determine the number of animals subject to translocation from Badai-Tugai to these territories.	1	1	NCECC RUz , LABR, Orolbuyi, Khorezm NNPs, Sudochie-Akpetki Nature Reserve	ASRUz, veterinary services, international organizations, NNOs	BDWP 2.2, 2.6, 2.12

	Events	Priority[2]	Urgency[3]	Responsible organization	Partners	Connection with other projects and programs
5.2	Use adaptation enclosures to keep deer in new locations for acclimatization before their full release into the wild.	1	2	NCECC RUz	GIZ, UNDP, WWF and other international organizations	
5.3	Relocate at least 30 Bukhara deer from Badai-Tugai to the Khodzhakul (Kipchak leskhoz) and Karatau tugai (state land reserve) (total area 1286 hectares, capacity 64-90 individuals), located next to each other.	1	2	NCECC RUz	Forestry Agency, LABR	
5.4	Relocate at least 10 deer to Nazarkhan and ensure the possibility of natural dispersal into the Sarygavdyr tugai forest area (Turkmenistan)	1	1	НКЭИК РУз, НАБР	Ministry of Environmental Protection of Turkmenistan, working group of 2.4	UNDP/GEF Aral Sea project in Turkmenistan[8]
6	**Combating poaching and feral dogs**					
6.1	Develop and disseminate information materials on illegally traded flora and fauna, and train border guards, customs officers, and police to strengthen their capacity to detect illegal trade, with a focus on Bukhara deer parts and derivatives.	2	2	NCECC RUz	NNO, Ministry of Internal Affairs of the Republic of Uzbekistan, Customs Committee, Committee for the Protection of the State Border, Veterinary Committee, ASRUz	CAMI WP 7.7, current and planned projects and programs of international organizations
6.2	In accordance with established procedures, conduct inspections at markets in all administrative units of Uzbekistan located near the habitat of the Bukhara deer, as well as at local catering establishments, in order to identify cases of illegal trade in meat of Bukhara deer and other wild animals.	1	1	NCECC RUz	Ministry of Internal Affairs of the Republic of Uzbekistan, Sanitary and Epidemiological Service, National Guard, Ecopolice	

[8]UNDP/GEF Project " Conservation and Sustainable Management of High-Value Land Resources and Ecosystems in the Aral Sea Basin for Multiple Benefits "

	Events	Priority[2]	Urgency[3]	Responsible organization	Partners	Connection with other projects and programs
6.3	Strengthen collaboration with local communities: a) Establish communication with farm enterprise managers so that they can notify the protected area administration about the appearance of suspicious persons or the sounds of gunshots, based on existing LABR practices; b) In accordance with national law, apply existing incentives for local residents to provide verified information about poachers or illegal trade sites.	1	2	LABR, NCECC RUz	Rural citizens' assemblies, NNOs	CAMI WP 7.9
6.4	Strengthen patrolling and inter-departmental cooperation through existing structures (Amu Darya Basin Inspectorate, district offices of the National Ecology Committee, Beruniy and Kipchak lekhoz, Khorezm NNP, as well as the National Guard and the Ministry of Internal Affairs) to strengthen measures to combat poaching, including through river patrolling, in the territories of the LABR and around the LABR (Beruniy and Kipchak lekhoz areas, tugai under Mount Karatau, adjacent agricultural lands).	1	1	NCECC, LABR, NPP Khorezm	Ministry of Internal Affairs, National Guard, Department of Automobile and River Transport of the Ministry of Transport	Existing and planned projects and programs of international organizations
6.5	Conduct an assessment of the needs for material and technical equipment of LABR and NPP Khorezm and determine the funding priorities.	2	2	NCECC RUz, LABR, NPP Khorezm		FOLUR Uzbekistan
6.6	Improve the patrolling and early warning system in the LABR and Khorezm NNP using high-tech camera traps: a) Equip the LABR and NNP Khorezm with camera traps and high-definition video cameras; to place camera traps with GSM modules at key points: at the entrances to the territory of LABR and NNP Khorezm, in forestry enterprise areas, on trails, at watering holes, to enable live detection of poachers and dog attacks on Bukhara deer at the ranger duty station; b) Explore the possibility of integrating artificial intelligence into a camera trap system for patrolling and early warning systems.	1	1	LABR, NPP Khorezm, Beruniysky, Kipchak leskhoz management	UNDP, WWF FAO Uzbekistan, IUCN, Conservation XLabs (CXL)	FOLUR Uzbekistan
6.7	Implement a SMART patrolling system in the LABR and Khorezm NNP, including training for protected area staff,	1	3	NCECC RUz, LABR	NNOs, international organizations	CAMI WP 7.3, 7.4 FOLUR Uzbekistan

	Events	Priority[2]	Urgency[3]	Responsible organization	Partners	Connection with other projects and programs
	to assess and improve the effectiveness of anti-poaching efforts, use this analytical data to optimize anti-poaching strategies, and encourage the exchange of experiences between protected areas at the national level.				FAO Uzbekistan, IUCN	
6.8	Study the impact of feral and stray dogs on the Bukhara deer and strengthen measures to control them, including humane capture and, if necessary, regulation of the population of identified stray packs in accordance with the legislation of the Republic of Uzbekistan.	1	1	NCECC RUz, LABR	NNOs, Veterinary Service, Ministry of Internal Affairs of the Republic of Uzbekistan, Hokimiyats, local communities	
7	**Education, public awareness and tourism**					
7.1	Continue the development, updating, and widespread implementation of a series of educational activities based at the LABR Museum including production of educational materials on the ecology of the Bukhara deer, emphasizing the importance of preserving its habitat connectivity with the involvement of professional teachers and educators for visitors, children, and representatives of various sectors that influence Bukhara deer habitat, using interactive and innovative approaches.	2	2	NCECC RUz, LABR	NNOs, international organizations, scientific institutions, local communities, the Ministry of Higher Education, Science and Innovation of RUz, the Ministry of Preschool and School Education of RUz	CAMI WP 11.2, 11.3, 11.4, current and planned projects and programs of international organizations
7.2	If a decision is made to continue keeping and breeding Bukhara deer in an enclosure within LABR, recommendations on the use of enclosures for environmental education should be prepared [9].	2	3	LABR	NCECC, AN RUz	
7.3	Elaborate a strategy and action plan for the development of ecotourism in the regions of Khorezm and Karakalpakstan with an emphasis on the conservation of biodiversity in the LABR and the	1	2	NCECC RUz	LABR NNO, the Tourism Committee of the Republic of Uzbekistan, local	

[9] The enclosure's conditions can be optimized for the purposes of establishing a visitor center and environmental education, maintaining a reserve group of deer for urgent transportation to other habitats, for holding wild-caught deer before transportation, for developing optimal conditions for keeping, and for exchanging animals to maintain optimal genetic diversity and herd structure.

	Events	Priority[2]	Urgency[3]	Responsible organization	Partners	Connection with other projects and programs
	Khorezm National Nature Park, involving local communities in the development and implementation of this plan, as follows: a) provide opportunities for local communities (guides, guest houses) to benefit financially from ecotourism; b) support the participation of local communities in the development of ecotourism, including the observation of Bukhara deer in their natural habitat, in combination with other types of tourism activities; c) support the development of alternative sources of income for local communities, for example derived from production and sale of sustainably produced traditional products and goods, which could help reduce negative anthropogenic impacts on the riparian ecosystem; d) provide LABR and the local advisory committee with consultative support on the development and promotion of sustainable ecotourism, including for the implementation of points 7.3 (a)- (c).				Hokimiyats, travel agencies, and international organizations	
7.4	Equip localized feeding fields for deer (see paragraph 3.9) to allow tourists to observe deer from observation towers and invite local residents to work as guides.	2	2	LABR		
7.5	Use existing awareness-raising programmes to develop and deliver wildlife conservation training for border and customs officials in national languages, explaining their roles and responsibilities in relation to wildlife conservation and, where possible, collaborate with national and international organisations and development partners.	1	2	NCECC RUz	Border services of the Republic of Uzbekistan, UNDP, GIZ, WWF	
7.6	Complete the construction of the visitor center at LABR and establish its operations.	1	1	NCECC RUz, Ministry of Economy and Finance of the Republic of Uzbekistan	International organizations	
7.7	Consider the possibility of creating a visitor center in the Khorezm NNP and developing ecotourism infrastructure (trails, signs, observation towers)	1	1	NCECC RUz	International organizations	

	Events	Priority[2]	Urgency[3]	Responsible organization	Partners	Connection with other projects and programs
7.8	Develop ecotourism routes including visits to protected areas and offer travel agencies their integration into existing tours in Karakalpakstan.	1	1	Council of Ministers of the Republic of Karakalpakstan, Hokimyats, Committee on Tourism of the Republic of Uzbekistan	NNOs, private sector	
8	**Coordination and fund-raising**					
8 .1	Consider the possibility of implementing the activities of the Lower Amu Darya Connectivity Action Plan for the Bukhara Deer (LACAP, this Action Plan) within the framework of current and planned national and international projects.	1	1	Coordinator of the Fund-raising Coordination Group (FCG)	NCEC, members of the CGF, UNDP, IUCN, FAO	FOLUR Uzbekistan, NCECC/UNDP GEF project " Aral Sea Wetlands » [10], UNDP/GEF project in Turkmenistan
8 .2	Propose to the NCECC the creation of a fundraising coordination group consisting of representatives of the NCECC, interested ministries and international organizations to raise funds from various sources for the implementation of LACAP.	1	1	CMS Secretariat	Other stakeholders and international organizations	
8.3	Integrate the activities of LACAP into national biodiversity plans, including in the development and implementation of the NBSAP.	1	1	NCECC RUz, MEP of Turkmenistan	UNDP, CMS Secretariat, other international organizations	
8.4	Develop a roadmap for attracting funding.	1	1	Coordinator of the FCG	Members of the FCG	
8.5	Develop and submit funding applications, selecting the most suitable funds for the implementation of selected LACAP activities.	1	1	The FCG Coordinator, based on the input of the group members	Members of the FCG	CAMI WP 2.5

[10] Aral Project Sea The Wetlands project to restore the Aral Sea wetlands, funded by the Global Environment Facility (GEF) and implemented by UNDP in partnership with the National Committee of the Republic of Uzbekistan on Ecology and Climate Change.

	Events	Priority[2]	Urgency[3]	Responsible organization	Partners	Connection with other projects and programs
8.6	Present a progress report on the implementation of the LACAP at the meeting of CAMI Range States, at the meeting of Bukhara Deer MOU Signatories and at the 16th Conference of the Parties to the Convention on the Conservation of Migratory Species (CMS COP16)	2	3	FCG Coordinator will appoint a group member	Members of the FCG	
8. 7	Consider expanding this plan to include additional activities and cover larger areas of the habitat (e.g., the middle reaches of the Amu Darya) if resources permit.	2	3	NCECC RUz, MEP of Turkmenistan	Members of the FCG	

Annex 1

Mandate
WORK PROGRAMME FOR THE BUKHARA DEER (2025–2032)

2.1 To study the possibility of creating an ecological corridor between the Nazarkhan site (the Lower Amu Darya Biosphere Reserve (LABR) cluster), the Bekbai forestry enterprise (BFE) and the Sarykabdytugai tugai forests (STF) to ensure the existence and safe cross-border migration of the Bukhara deer.

2.2 Ensure dispersal and recolonization of Bukhara deer into suitable areas within and beyond the LABR by improving connectivity between habitats and, where necessary, relocation. (UZB, potentially with the participation of TCM)

2.3 Improve the environmental conditions of forestry enterprises where natural dispersal of reindeer from the LABR occurs (Beruni forestry enterprise, Kipchak forestry enterprise, tugai under the Karatau mountain of the State Land Reserve), implement strict regulation of grazing of livestock and horses, strengthen fire prevention measures and strengthen anti-poaching protection.

2.4 Develop and implement urgent special measures to control the Bukhara deer population in the Badai-Tugai area of the LABR to avoid further ecosystem degradation, conflict between farmers and deer and the risk of increased mortality (EMR).

2.5 Restore tugai forests to their natural habitat, for example by releasing water into the Kokdarya channel to provide the Bukhara deer with an additional source of water and thereby promote an even distribution of the animals.

2.6 Prepare a reintroduction project in the new Sudochye-Akpetki nature reserve with an area of 280,507 hectares (with the prospect of organizing a transboundary protected area, migration of UZBKAZ) (UZB).

2.7 Create a protected natural area (PNA) in the region between the Akdarya and Kazakhdarya rivers with a deltaic version of the tugai landscape, with additional study of the area for the suitability of the reintroduction of Bukhara deer (BDE).

2.8 To study the ecological capacity of the lands and develop population models of possible prospects for the development of Bukhara deer populations.

2.9 In the event of the exclusion of the Bukhara deer from Appendix I of the CMS, consider the possibility of introducing sustainable hunting in the relevant territories in the context of population control and the creation of incentives for protection against poaching and the coexistence of farmers and deer outside the protected areas (PZA).

2.10 Analyze the negative impact of industrial enterprises and quarries for the extraction of non-metallic materials on the habitat of the largest population of Bukhara deer in the LABR (in particular, in the Badai-Tugai and Jumurtau areas), and develop, coordinate and implement measures to reduce this negative impact on Bukhara deer and develop ecotourism (UZB).

2.11 Develop, coordinate and implement a system of measures to prevent injury and death of deer during transboundary migration between the TCM and UZB in the lower reaches of the Amu Darya River (UZBTCM).

2.12 Reintroduce the Bukhara deer in the Yangibozor and Urgench sections of the recently created Khorezm National Park with the transportation of deer from the National Park of the Republic of Bukhara (UZB).

2.13 Involve local communities in the development of ecotourism with observation of Bukhara deer in the wild in combination with other activities and provide local residents with the opportunity to obtain an additional source of income while reducing the impact on the tugai ecosystem.

2.14 Explore the possibility of involving local people in wildlife management to create a sense of ownership and to benefit from ecotourism and, if the species is delisted from Appendix I of the CMS, hunting to offset the costs of living alongside reindeer (UZB).

Annex 2

Indicative Quarry and Plant Impact Assessment Plan:

1. Collection of initial data:

- Mapping : Determining the exact boundaries of the reserve, buffer zone, quarries and plant.
- Technical parameters : Collection of data on plant capacity, production volumes and wind rose.

2. Assessment of atmospheric and soil pollution

- Emission modeling : Calculation of dispersion of cement dust, nitrogen oxides and sulfur dioxide.
- Analysis of air dust pollution.
- Vegetation analysis : Measurement of dust layer thickness on the leaves of turanga trees and shrubs.
- Chemical analysis : Laboratory study of the composition of the feed base for the content of heavy metals.

3. Measurement of noise and vibration pollution

- Noise measurements : Recording decibels at the boundary of the reserve during quarry operations.
- Disturbance zoning : Identification on a map of areas where noise levels exceed the natural background.

4. Monitoring the population status

- Stress analysis : Determination of cortisol levels in deer excrement near the industrial zone and in the depths of the reserve.
- Behavioral changes : Recording changes in daily activity and animals' departure from watering places.
- Digestive problems, exhaustion, decreased birth rate.
- Changes in the spatial structure of the population.