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Big Cats

A magazine by IBCA on wildlife conservation

Special Op-Ed by
World Bank President
Ajay Banga
and former WB President
Robert B Zoellick

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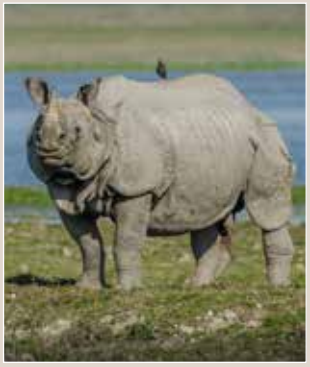
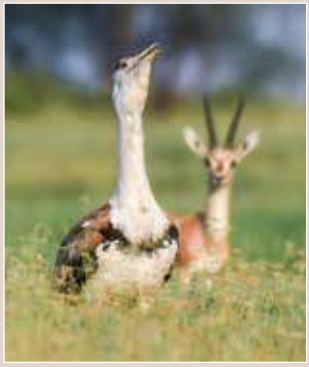
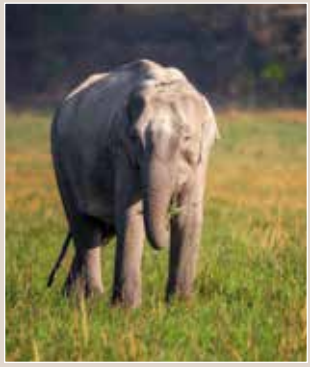
African
Cheetah
in Peril

Protecting Persian Leopard

India's
10 Years of
Conservation







The Persian leopard making its way through the steppe and juniper woodland vegetation of Golestan National Park, Iran

Photo: Jafar Panahpour

Protecting the **Persian Leopard**

Four years ago, range countries formed the **Persian Leopard Working Group** aimed at the conservation of a species listed as Endangered on the IUCN Red List. The Executive Council members of this alliance share how different countries plan to keep the leopard thriving in the wild

BY THE **PERSIAN LEOPARD WORKING GROUP**

Persian leopards *(Panthera pardus tulliana)* move like ghosts across the steep and rugged mountains and semideserts in Southwest Asia they call home. Their ability to mostly tiptoe around humans is perhaps a function of the persecution, and the loss of habitat and prey that many big cats faced in this region. Retaliatory killing due to human-leopard conflict, poaching of the prey and competition with livestock drove the leopard population to near extinction in some countries, and severe fragmentation in others.

Persian leopards were once distributed across most of the Caucasus region, the Iranian and Anatolian Plateaus and the southern parts of Southwest Asia, avoiding true deserts and human landscapes. But by the mid-20th century leopards had disappeared from large parts of their historical range, which once included the territories of today's Afghanistan, Armenia, Azerbaijan, Georgia, Iran, northern Iraq, northern Israel, Jordan, Lebanon, Türkiye, western Pakistan, Russian Caucasus, Syria, southern Turkmenistan, Tajikistan and Uzbekistan. In some cases, hunting rewarded by official bounties expedited the decline in some countries, including Armenia, Azerbaijan, Georgia and Russia. Today, there are no recent confirmed records from Uzbekistan, and only single numbers of occasional migrants in Kazakhstan and Georgia. The leopard is declared extinct in Israel, Lebanon, Palestine, Syria and Tajikistan.

> Having lost somewhere between **72-84%** of its historical range, today the biggest leopard population is found in Iran with somewhere between **528–732** individuals, followed by Turkmenistan with **60-80** individuals

Having lost somewhere between 72-84% of its historical range, today the biggest leopard population is found in Iran with somewhere between 528–732 individuals, followed by Turkmenistan with 60-80 and likely inflated 63-97 in the Caucasus Ecoregion.

Despite being protected under national legislation across the range and internationally under the Convention on International Trade in Endangered Species of Wild Animals (CITES), the Convention on the Conservation of Migratory Species of Wild Animals (CMS), and the Bern Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), the Persian leopard's present and future continue to face some major threats such as illegal hunting, habitat fragmentation and loss, human-leopard conflict, prey loss, and climate change.

The Persian leopard is currently listed as Endangered on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species. In order to respond to the urgent need for a

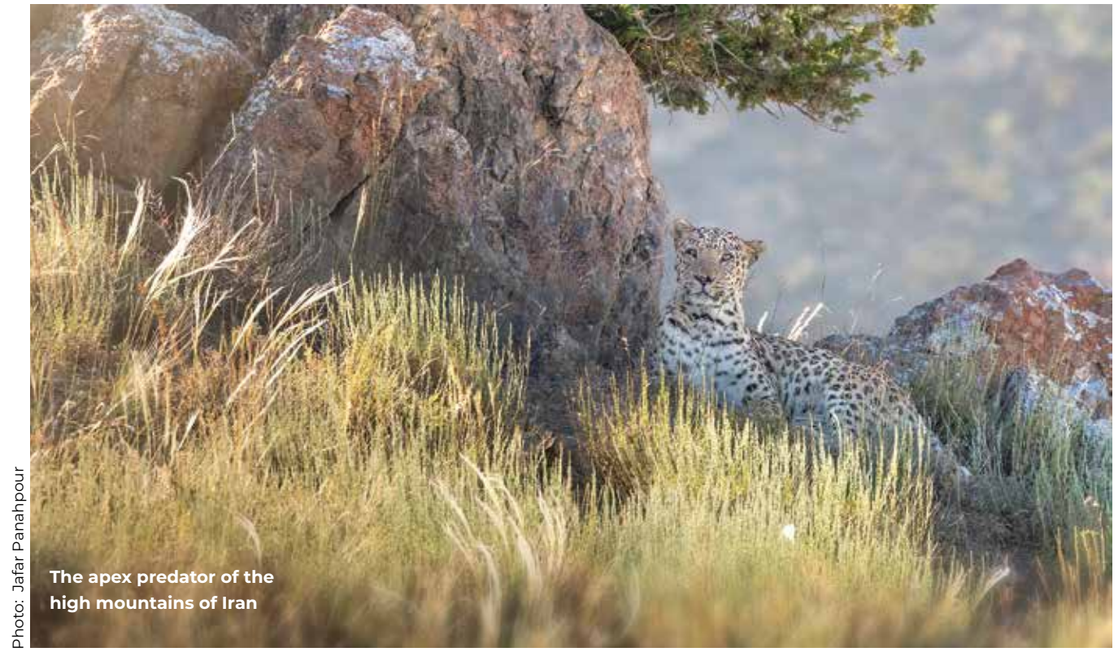
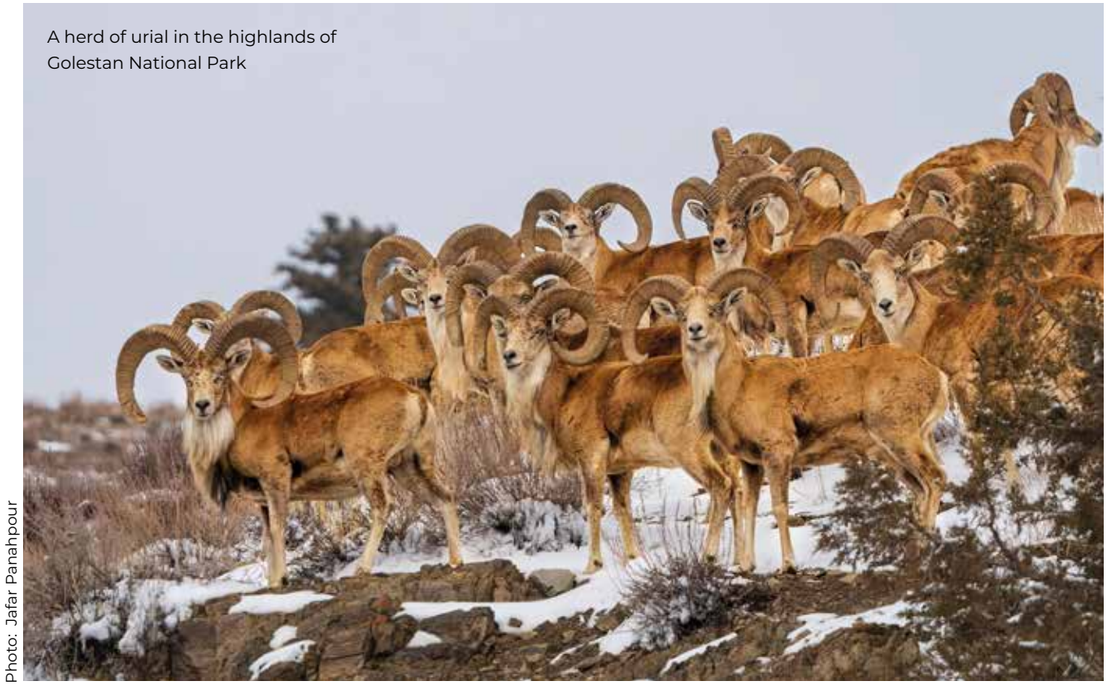


Photo: Jafar Panahpour

The apex predator of the high mountains of Iran



A herd of urial in the highlands of Golestan National Park

Photo: Jafar Panahpour

comprehensive conservation approach for the Persian leopard, its prey species and their habitats, the IUCN Species Survival Commission's (SSC) Cat Specialist Group spearheaded the initiative to develop the Range-Wide Strategy for the Conservation of the Persian leopard under the auspices of Convention on the Conservation of Migratory Species of Wild Animals and its Central Asian Mammals Initiative (CAMI).

In 2022, the majority of the range states came together to develop and endorse the strategy, which provides a comprehensive framework for targeted conservation actions. A decision was made to establish the Persian Leopard Working Group (PeLeWG) as an affiliated partner of the IUCN/SSC Cat Specialist Group to serve as a technical coordination group for planning and supporting Persian leopard conservation actions, including implementation of the relevant activities of the CAMI Programme of Work and the Strategy.

Persian leopards inhabit a wide variety of habitats and ecosystems from lowlands at the sea level up to 3,000 m in elevation, encompassing montane forests and open woodlands, grasslands and cold desert ecosystems. The preference is given to precipitous cliffy and rocky areas, especially those covered by open juniper and pistachio woodlands providing cover for hunting and resting places. These are the same areas where the main leopard prey is found, depending on the region: urial sheep, mouflon, bezoar goat, East Caucasian tur, West Caucasian tur, chamois, wild boar, red deer, fallow deer, roe deer, goitered gazelle, and Indian crested porcupine. Leopards can prey also on small species such as chukar, snowcocks, hares and Afghan pika. However, often the lack of wild prey drives leopards to kill domestic livestock and dogs for survival, thus bringing leopards into conflict with people. Usually, local people retaliate by killing leopards.

Persian leopards can move long distances in search of prey and mates. In Kazakhstan, two leopards are known to have travelled back and forth over more than 200 km in the past six years. Elsewhere, long dispersals were reported for a male who moved between Bamu and Bakhtegan National Parks in Iran (112 km), a male in Azerbaijan and Armenia and a male in Armenia and Türkiye. Prey availability, population density, age, sex and reproductive status all affect the ranging behaviour of leopards. A prey-rich environment will have greater leopard densities and often smaller home ranges.

Habitat fragmentation, loss of prey base and conflict with local people over livestock depredation cause population declines throughout the range. Leopards are killed in retaliation to killing livestock and dogs, as well as rare attacks on people in some areas. They are also trapped and persecuted because of fear or the intention to illegally trade their skins, paws and other products.

Linear infrastructure, especially border fences, severely hamper the movements of leopards as well, as does the armed conflict. The presence of landmines along some state borders in the region may deter poachers but kill or maim leopards. Diseases of Persian leopards are poorly studied, but plague, feline infectious peritonitis, canine distemper and rabies are some of them which can potentially be dangerous and even deadly for these cats.

What countries are doing for leopards

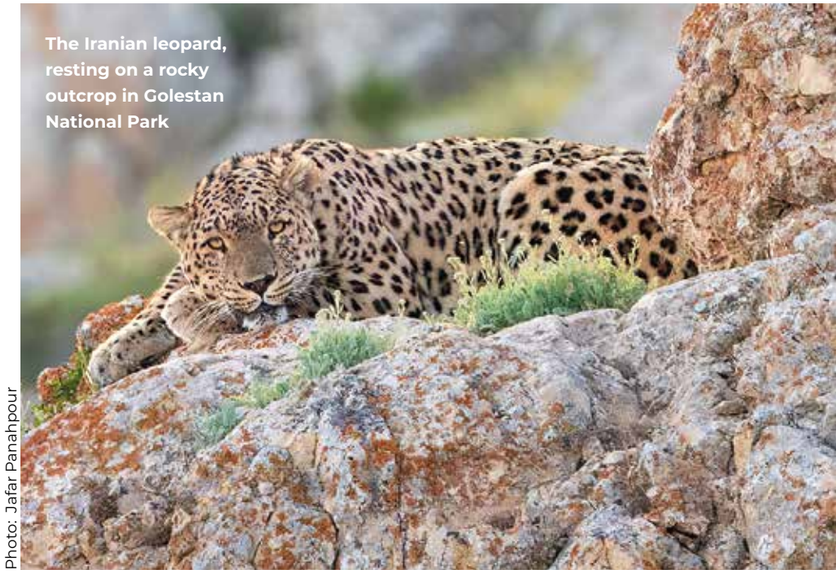
In Afghanistan, the Persian leopard has been listed on the country's Protected Species List, because of which the species receive the highest level of protection. The Government of Afghanistan has declared three protected areas, the 'Band-e-Amir' National Park, the Bamyan Plateau Protected Landscape, and the Nuristan National Park within the Persian leopard distribution range in the central and eastern parts of the country. Among other conservation measures taken in Afghanistan are the community and park rangers who conduct patrols in parts of the Persian leopard range. The Kabul Zoo has been an active rehabilitation centre for the orphaned, injured, and confiscated Persian leopards. Moreover, the Afghanistan's National Environmental Protection Agency, through its local teams in the field closely monitor the wildlife related issues.

Despite the conservation measures, the prolonged war and unrest coupled with the spread of weapons across the country have posed major threats to the species and its wild prey. The recent change in regime exacerbated the poaching of the wild ungulates in some parts of the country, and lax law enforcement fuels trade in leopard pelts.

The South Caucasus (Armenia, Azerbaijan, Georgia) enjoys arguably the longest and most comprehensive project focused on Persian leopard conservation, which has been conducted since 2002 up to now by World Wide Fund for Nature (WWF) under financial support from WWF Germany and WWF Switzerland. Introduction of the hunting ban in the Nakhchivan Republic of Azerbaijan in 2001 allowed to magnify the effectiveness of this project.

In Iraq, the Persian leopards inhabit the rugged terrain of the Zagros Mountain Forest Steppe ecoregion, which forms a vital corridor for leopard connectivity between Iran and Türkiye. Despite the challenges of political instability and habitat fragmentation, recent conservation efforts have revealed promising signs of recovery. In 2022, the first-ever breeding record of Persian leopards in Iraq was documented by the Leopards Beyond Borders (LBB) and Bamo Leopard Group team using camera traps. This discovery underscores the ecological importance of the area and its potential to support a thriving leopard population, challenging the earlier assumption that only dispersing males visited Iraq. The LBB is leading efforts to establish Iraq's first Community Conserved Area in the Bamo Mountains, using the Persian leopard as a flagship species.

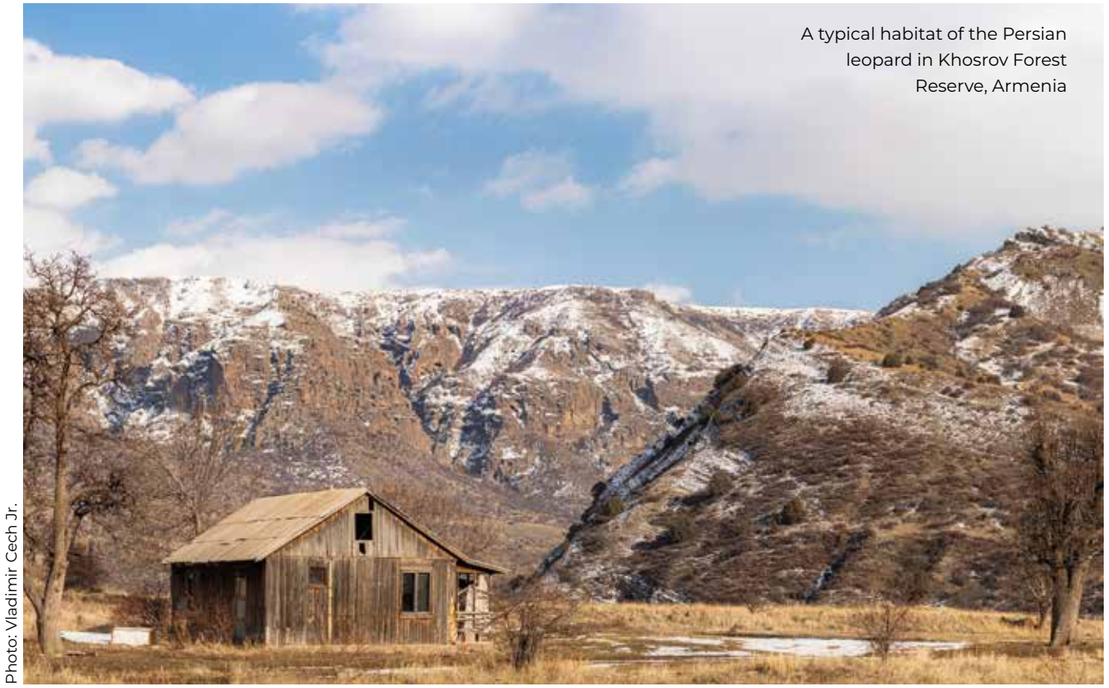
Significant challenges like habitat loss, retaliatory killings, and human-leopard conflict continue to threaten leopard populations. More recently, there are plans for the construction of physical pole-and-barbed-wire fences along the Iraq-Iran border near the Bamo Mountains, as well as cement walls along the Iraq-Türkiye border, which raises serious concerns about the future movement and connectivity of Persian leopards. Additionally, security threats such as landmines near the Iraq-Iran border, drone strikes, and the burning and cutting of natural forests along the Iraq-Türkiye border further endanger the safety and viability of these transboundary leopard populations.



The Iranian leopard, resting on a rocky outcrop in Golestan National Park

Photo: Jafar Panahpour

In Kazakhstan, until the end of the 20th century, the leopard was not recorded by specialists for the fauna of this country, however, in the period from 2007 to 2024, it is reliably known about at least 5 individual males which came into the Mangistau region of Kazakhstan from the neighboring territory of Turkmenistan. Since 2023, the Biodiversity Research and Conservation Center (BRCC) together with the Association for Conservation of Biodiversity of Kazakhstan (ACBK), supported by Conservation X Labs, in partnership with the Ustyurt State Nature Reserve (USNR) and a network of regional protected areas have been monitoring the presence of leopards using camera traps; working on reducing the impact of border fences on transboundary migrations of ungulates, the main prey of the leopard by piloting openings in the border fence with Turkmenistan and Uzbekistan; contribute to the optimisation and expansion of the network of protected natural areas as well as working on a series of outreach activities to facilitate coexistence between local communities and wildlife. The Persian leopard was included in the Red Data Book of Kazakhstan in 2021. In the same year, an Action Plan for the Conservation of the



A typical habitat of the Persian leopard in Khosrov Forest Reserve, Armenia

Photo: Vladimir Cech Jr.

Persian Leopard in Kazakhstan for 2022-26 was prepared and approved.

In Russia, the federal Project of the Persian leopard recovery in the Russian Caucasus is implemented through the reintroduction of captive bred animals. The Project was initiated in 2005 by A N Severtsov Institute of Ecology and Evolution of the Russian Academy of Sciences and WWF-Russia, and it was approved for the implementation on the governmental level in 2007 (under management of the Ministry of the Natural Resources and Environment of the Russian Federation). The goal of the project, which to date continues to be supported by the Ministry of Natural Resources and the Nature and People, an NGO, is to create a Persian leopard population nucleus in the northern part of its historical range, where the species disappeared due to direct and indirect human influence in mid-20th century. Eight males and seven females were released into the wild from 2016 till 2023 in two sites in Ossetia, using leopards bred in the Sochi Breeding Center. Successful survival of released animals during a full year cycle was scientifically confirmed thanks to post-release monitoring with satellite GPS-VHF collars and field surveys of kill-sites and other important places. Breeding in the wild was not observed so far.

In Türkiye, the Leopard Research Unit of the General Directorate for Nature Conservation and National Parks (NCNP) is responsible for monitoring populations of leopards and their main prey species within the leopard distribution in the Mediterranean, Caucasus and the south-eastern Türkiye. The NCNP is currently developing the National Leopard Conservation Action Plan and several new protected areas are planned to interconnect existing protected areas in the western Mediterranean. Led by researchers from multiple research institutions and the NCNP officials, there is also an ongoing research project funded by the Scientific and Technological Research Council of Türkiye (TÜBİTAK) aiming to assess the distribution range, individual numbers and population genetics of the leopards in the Mediterranean Region. Leopard research in the Lesser Caucasus is conducted by the local university researchers in the region. The leopard is a strictly protected species under the Turkish Hunting Law with a fine of 3,000,0000 Turkish Liras (USD 84.595) for killing an individual.

In Turkmenistan, Team Bars Turkmenistan, supported by Conservation X Labs, and in partnership with the Ministry of Environmental Protection, is monitoring the population (currently estimated to be around 60-80 individuals) and working with protected area management to strengthen antipoaching efforts, including through the use of SMART, a tool to help minimise threats to wildlife and conservation areas. The Team is also supporting the government in setting up a new cluster of protected areas in the northwest of the country, an important leopard stronghold and ecological corridor for leopard dispersal to Kazakhstan. It is working with local herding communities to mitigate conflict with leopards; and negotiating to create wildlife passages on the border with Kazakhstan.

Gazetting Reserves

In Iran, where the largest population of Persian leopards persists, there are approximately 500-800 leopards living in most of the country's mountainous landscapes. Although the species is protected by law, conflict with local people remains one of its main challenges for survival. Nonetheless, the species has been making a comeback in recent years, particularly in central desert mountainous landscapes, thanks to increased conservation actions, such as the gazetting of multiple reserves.

In contrast, the status of the species in the Caucasian region remains quite uncertain, with limited records from border reserves shared with Armenia and Azerbaijan. In the Alborz and Kopet Dag mountains, the latter situated along the Iran-Turkmenistan border, it is estimated that more than 200 leopards still reside, representing the largest population nucleus of leopards in west and central Asia. A recent satellite telemetry study in this area showed that Persian leopards have some of the largest home ranges ever recorded for leopards, with adult males covering an area of around 100 sq km, indicating their substantial spatial requirements.

In Pakistan, there remain uncertainties on the taxonomy of leopards and regardless of their genetic profiles are all critically endangered and remain in great need of conservation. Despite the taxonomic uncertainty, leopard occurrence has been documented across all provinces and states of Pakistan. A recent camera trapping study also documented leopards sharing their habitat with snow leopards, capturing both species at the same stations. Notably, this study recorded the highest elevation point of leopard occurrence in Pakistan. The Persian leopard population is believed to be distributed along the Iran and Afghanistan borders; however, these areas remain poorly explored and studied. Furthermore, weak law enforcement and fencing along the borders put an additional pressure on the already fragmented leopard populations in these regions. Approximately 15 national parks in Pakistan currently support leopard populations. However, most of these parks are poorly managed and cover small areas, which limits their capacity to sustain viable populations. Recently, the Wildlife Ecology Lab at the University of Haripur initiated efforts to bring together all stakeholders (academia, wildlife managers, and indigenous communities) to collaborate on a shared conservation goal.

Parviz Fatullayev checks a camera trap on the Zangezur Ridge in Azerbaijan's Nakhchivan Autonomous Republic. Breeding females are present on the Nakhchivan and Armenian sides of the Zangezur Ridge

Photo courtesy WWF Azerbaijan

In Uzbekistan, despite the lack of modern records, the Babatag National Nature Park was established in 2022 in a potentiall leopard habitat, where camera traps are used on a permanent basis. The leopard is protected at the state level by being listed as Critically Endangered in the Red Book, with a fine of USD 85,630 for locals and USD 400,000 for foreigners for killing an individual.

Because of the shared nature of the challenges and threats faced, the PeLeWG strives to facilitate communication and collaboration amongst scientists and conservationists across the range, particularly by strengthening local technical capacities, building up professional knowledge and raising awareness to support the next generation of Persian leopard conservationists.

Contributors to this report include Konul Ahmadova, Mohammad Farhadinia, Ozgun Emre Can, Mariya Gritsina, Muhammad Kabir, Shirin Karryeva, Igor Khorozyan, Deniz Mengüllüoğlu, Zalmai Moheb, Hana Raza, Niloufar Raeesi, Tanya Rosen, Vladimir Terentiev and Anna Yachmennikova – all members of the Executive Council to Steering Committee of the Persian Leopard Working Group.