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Silent Roar

UNDP AND GEF IN THE SNOW LEOPARD LANDSCAPE

ACKNOWLEDGEMENTS

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We wish to acknowledge the **UNDP** and **GEF** staff, consultants, and partners who contributed to this publication: Tehmina Akhtar, Ana Maria Currea, Adriana Dinu, Lisa Farroway, Gustavo Fonseca, Uyanga Gankhuyag, Christian Hofer, Daniar Ibragimov, Kyle Kaufman, Khurshed Kholov, Fan Longqing, Cathy Maize, Ruchi Pant, Pakamon Pinprayoon, Evgeniia Postnova, Ajiniyaz Reimov, Olga Romanova, Nadisha Sidhu, Nargizakhon Usmanova, Maxim Vergeichik, Katerina Yushenko, Yuqiong Zhou, with special thanks to Marc Foggin and John MacKinnon for generously permitting the extensive use of their photographs.

We wish to acknowledge the central role of the **GSLEP Secretariat**: Hamid Zahid (Chair), Abdykalyk Rustamov (Co-chair), Kyial Alygulova, Yash Veer Bhatnagar, Chyngyz Kochorov, Andrey Kushlin, Keshav Varma, with special thanks to Koustubh Sharma and Matthias Fiechter for their technical review of this document, contributions of text, photographs, maps and invaluable feedback on all aspects of the publication; and the Permanent Mission of the Kyrgyz Republic to the UN in New York: Madina Karabaeva.

We would like to extend our sincere thanks to the following GSLEP partners for their contributions to the text, photographs and review of this publication: **CITES**: Yuan Liu; **Convention on Migratory Species**: Polina Orlinskiy, Yelizaveta Protas; **Everest Snow Leopard Conservation Center**: Gao Yufang; **INTERPOL**: Jayeeta Kar; **Panthera**: Tanya Rosen, George Schaller; **Snow Leopard Conservancy**: Darla Hillard, Rodney Jackson; **Snow Leopard Trust**: Matthias Fiechter; **Wildlife Conservation Society**: Elizabeth Bennett, Maddie Thompson, Peter Zahler; **Worldwide Fund for Nature (WWF)**: Nikhil Advani, John Farrington.

Cover Art & Layout Design: Camilo Salomon, www.cjsalomon.com

Published by: The United Nations Development Programme (UNDP) and the Global Environment Facility (GEF)

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INTRODUCTION

A half century after Rachel Carson brought us *Silent Spring*, a lot of voices in the natural world are still falling silent. But in the world's high places, there remains an animal rarely seen and almost never heard. This is the story of one of the world's great cats, noteworthy for the fact that it does not roar. But its conservation story, intricately linked with the landscapes and people, needs to be heard.

Photo by Steve Winter/National Geographic Creative

In October 2013, officials from the 12 snow leopard range countries gathered in Bishkek, Kyrgyzstan for the first Global Snow Leopard Conservation Forum. Following two years of intense preparations, all 12 governments signed the historic Bishkek Declaration on the Conservation of Snow Leopards and unanimously endorsed the Global Snow Leopard and Ecosystem Protection Program (GSLEP). The core of the GSLEP are the National Snow Leopard and Ecosystem Protection Priorities (NSLEP) documents, one for each range country, as well as a series of Global Support Components (GSCs), outlining how international organizations may best assist the countries' efforts, particularly in transboundary and range-wide contexts. The United Nations Development Programme (UNDP) and the Global Environment Facility (GEF) are two such international organizations committed to contributing to the GSLEP through financial and technical support.

GEF has a long history of supporting conservation of the snow leopard (*Panthera uncia*) and its habitat, having approved 24 total projects and invested nearly USD \$100 million toward UNDP-implemented projects in all 12 range countries since 1991. This publication highlights nine current GEF-financed, UNDP-implemented projects that have emerged since the Global Forum in 2013, representing an investment of about \$45 million to support snow leopard range countries in meeting their national targets toward achieving GSLEP objectives. These nine projects alone have leveraged over \$200 million in co-financing from national and international partners. "Partner Spotlights" spread throughout this publication share examples of the innovative work done by several of these key GSLEP partners.

GSLEP countries identified 23 international landscapes as conservation priorities, each hosting an abundance of plant and animal species. A large part of these landscapes have been occupied and managed by indigenous peoples and local communities for generations, often experiencing poverty as they strive to make a living in one of the most remote and extreme environments on Earth. For UNDP, GEF and GSLEP partners, advancing the cause of snow leopard conservation represents the opportunity to protect globally significant biodiversity and work toward the improved well-being of humans—both women and men—as well as safeguarding essential ecosystem functions benefitting all life on Earth. Reviving and incorporating the traditional knowledge of the indigenous peoples, ethnic minorities and pastoralists who have lived on these lands in harmony with nature for centuries is essential to further promote conservation and sustainable development initiatives.

To achieve these overlapping and interconnected goals, our projects employ a comprehensive strategy aimed at addressing direct environmental threats as well as the underlying conditions that allow these threats to arise. Projects also target the issues at multiple levels, from local, on-the-ground interventions to regional and national government policy reform, to efforts that require international cooperation. Each project is designed with a suite of interventions aimed at achieving direct conservation results as well as creating a political and social environment that facilitates sustainable change and enables countries to accelerate achievement of the Sustainable Development Goals (SDGs). Through holistic project design and partnership with governments and other GSLEP organizations committed to conservation, the health and vitality of snow leopards and the people who rely on the high mountain ecosystems will extend long into the future.



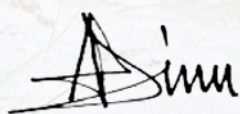
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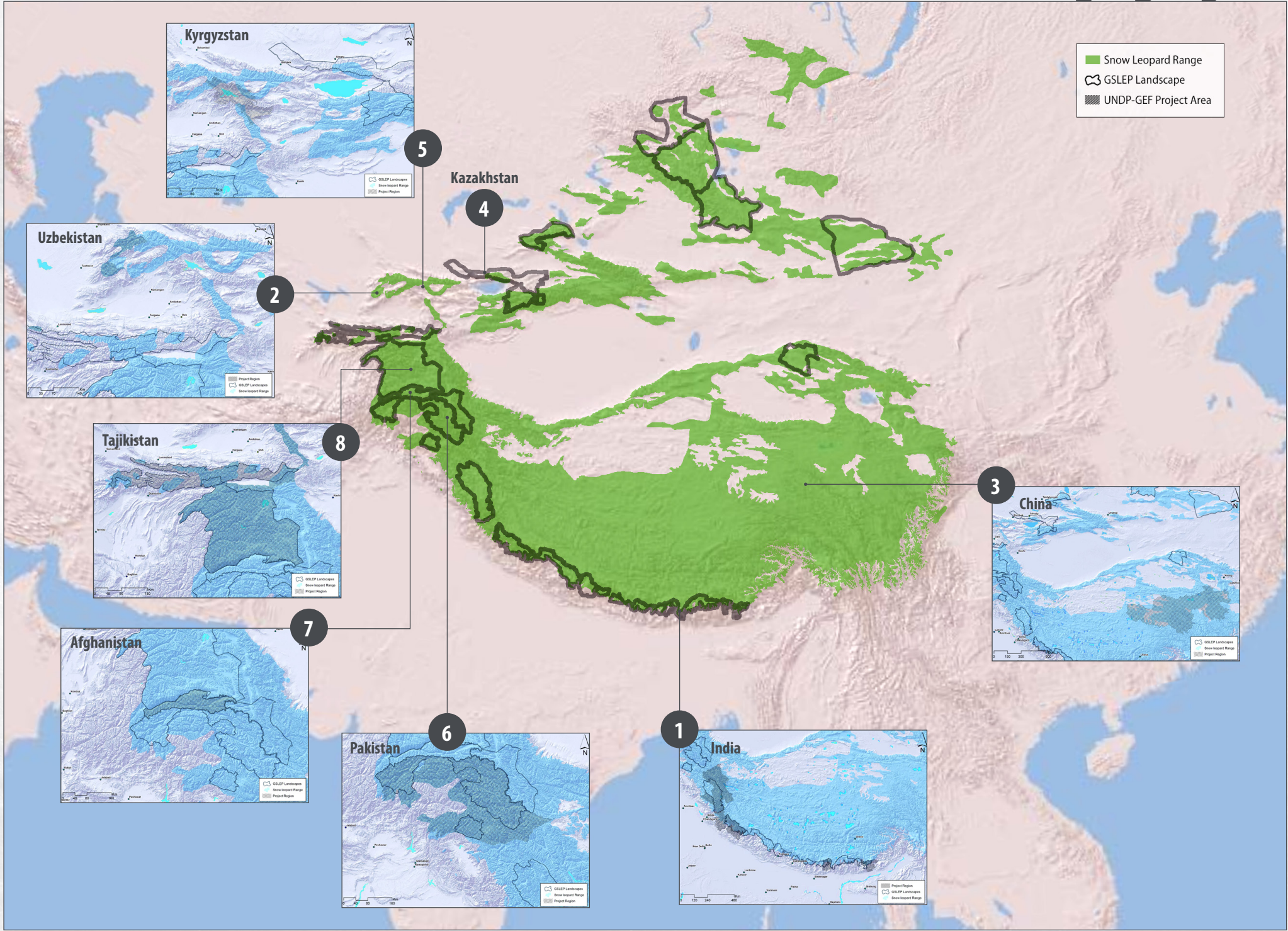


Abdykalyk Rustamov
Director, State agency on environment
protection and forestry, Kyrgyz Republic

Snow Leopard Range

CURRENT GEF-FINANCED, UNDP-IMPLEMENTED PROJECTS IN THE SNOW LEOPARD LANDSCAPE

- 1. India**
Securing Livelihoods, Conservation, Sustainable Use and Restoration of High Range Himalayan Ecosystems (SECURE-Himalayas), USD \$11.5m
- 2. Uzbekistan**
Sustainable Natural Resource Use and Forest Management in Key Mountainous Areas Important for Globally Significant Biodiversity, \$6.2m
- 3. China**
CBPF - Strengthening the Effectiveness of the Protected Area System in Qinghai Province, China to Conserve Globally Important Biodiversity, \$5.3m
- 4. Kazakhstan**
Conservation and Sustainable Management of Key Globally Important Ecosystems for Multiple Benefits, \$8m
- 5. Kyrgyzstan**
Conservation of Globally Important Biodiversity and Associated Land and Forest Resources of Western Tian Shan Mountain Ecosystems to Support Sustainable Livelihoods, \$3.9m
- 6. Pakistan**
Pakistan Snow Leopard and Ecosystem Protection Programme, \$4.6m
- 7. Afghanistan**
Conservation of Snow Leopards and their Critical Ecosystem in Afghanistan, \$2.6m
- 8. Tajikistan**
Conservation and Sustainable Use of Pamir Alay and Tien Shan Ecosystems for Snow Leopard Protection and Sustainable Community Livelihoods, \$4.1m
- 9. Global—Focus on Central Asia**
Transboundary Cooperation for Snow Leopard and Ecosystem Conservation, \$1.4m



Maps provided by Koustubh Sharma/GSLEP Secretariat.



ESTIMATED SNOW LEOPARD POPULATION BY COUNTRY

- Afghanistan:** 100-200
Bhutan: 100-200
China: 2,000-2,500
India: 200-600
Kazakhstan: 180-200
Kyrgyzstan: 150-500
Mongolia: 500-1,000
Nepal: 300-500
Pakistan: 200-420
Russia: 150-200
Tajikistan: 180-220
Uzbekistan: 20-50

Source: The IUCN Red List of Threatened Species:
Panthera uncia — published in 2008.

Expected Results

- Sustainable Land Management (SLM) and Sustainable Forest Management (SFM) Plans developed and implemented on over 17 million hectares
- Protected Area (PA) expansion or new PAs establishment covering at least 2.4 million ha
- 420,000 ha of degraded rangeland restored
- 957,900 ha of High Conservation Value Forests designated and managed

Supported in All Project Countries

- Sustainable livelihoods development and human-wildlife conflict prevention
- Community-based conservation and co-management
- Standardized wildlife and habitat monitoring
- Institutional capacity building and policy development
- Anti-poaching and anti-trafficking initiatives
- Fostering transboundary cooperation
- Education and awareness raising activities



SECTION 1

Why Snow Leopards?

Photo by Steve Winter/National Geographic Creative



Shadow-like, snow leopards silently stalk the remote steppes and steep, rocky slopes of Central and South Asia. Rarely glimpsed, the mysterious presence of these reclusive cats casts an almost mythical aura, earning them a prominent place in local legend and contributing significantly to the cultural identity of the diverse ethnic groups and nations that call the high mountain regions their home. The snow leopards' ghostly allure extends far beyond Asia, fascinating people from around the globe.

This widespread appeal combined with the severe threats contributing to the snow leopards' status as an endangered species makes them ideal 'ambassadors' or **FLAGSHIP SPECIES** for the cause of conservation. As such, snow leopards draw attention to the issues surrounding the decline of the species' population as well as garnering support for projects and initiatives to protect the animals and their habitat.

Promoting snow leopard conservation serves a broader purpose than simply saving one endangered species. Snow leopards act as an **INDICATOR** of the health of the entire ecosystem in which they live, due to their position as the top (apex) predator in the food web. A diverse and abundant community of species—from insects and birds to mammals, reptiles and plants—must be sustained within the habitat for an apex predator to thrive. Monitoring snow leopard populations alerts conservationists to conditions that disrupt the health of the ecosystem, allowing them to take action to mitigate threats for the benefit of all species that live within it.

Furthermore, preserving snow leopards throughout their range directly enhances habitat vitality by maintaining balance in the food web. Snow leopards function as a **KEYSTONE SPECIES**—although they occur in relatively low abundance, snow leopards play a critical role in regulating the populations of other species, preventing any one species from dominating the habitat.



Photo by Marc Foggin

HIGH MOUNTAIN HABITAT

Protecting snow leopards goes hand in hand with protecting the landscape in which they live.

Snow leopards specialize in one of the harshest and most remote habitats on Planet Earth. Well-adapted to the cold, dry conditions, snow leopards roam the high mountains of Central and South Asia up to elevations of 5,000m or more. Steep slopes, rocky crags and rugged terrain provide ideal hunting grounds for the stealthy cats, on the prowl for ibex, blue sheep and other wild ungulates (hoofed mammals) grazing far and wide on the sparse mountain vegetation.

The vastness of the landscape deceives the eye, appearing to harbor few animals and even fewer people. To an outsider accustomed to life in the bustling cities or green, fertile valleys of lower elevations, the high mountains may resemble an inhospitable wasteland. But this difficult terrain conceals indispensable resources, not only for snow leopards and their prey, but for humanity.

UNIQUE BIODIVERSITY

In addition to the snow leopard, high mountain landscapes support hundreds of species of plants and animals, many of which live nowhere else on the planet. Aside from the intrinsic value of this globally significant biodiversity, these unique species provide opportunities for scientific and educational advancement, medicinal breakthroughs and agricultural improvements. Additionally, the accumulation of vegetation across the immense landscape serves as a substantial carbon sink, essential for slowing global climate change.

WHY PROTECT THE HIGH MOUNTAIN LANDSCAPES?



Background photo: Pakistan/Snow Leopard Trust. Species photos by John MacKinnon, Midori Paxton, and Everest Snow Leopard Conservation Center.



Photo by Marc Foggin

ASIA'S WATER TOWER

The glaciers and plateaus of Asia's high mountain landscapes serve as the birthplace for 13 major rivers, supplying fresh water to nearly 60% of the human population. The availability of clean, abundant water is foundational for all aspects of human life and activity from the high mountains down to the sea, from raising livestock and growing crops to generating hydro-electricity, maintaining industrial operations, and, of course, supporting life itself. Additionally, these landscapes serve a climate regulating function, as low pressure builds up on the plateaus during summer, drawing winds from the distant oceans that carry monsoon rains to the agricultural lands of Asia. Climate change is already disrupting this reliable annual cycle as rapidly increasing temperatures on the plateaus spark an increase in the frequency and intensity of cyclones, droughts and floods across the region.

CULTURAL HERITAGE

Although sparsely populated, the high mountain landscapes are rich in cultural diversity. The indigenous peoples and ethnic minorities in these remote landscapes each boast a unique way of life, with distinctive skills, languages, knowledge systems and art forms that have been handed down through generations. Predominantly pastoralists, many families still follow nomadic traditions, moving with their herds of yaks, goats and sheep as the seasons change. Maintaining the productivity of this rangeland is fundamental for sustainable development to take place in these societies, improving household well-being and preserving their way of life. The mountains themselves hold deep spiritual significance not only for the local inhabitants, but for pilgrims from all religions that journey to the sacred sites that abound throughout the region.

Safeguarding a healthy, functioning snow leopard habitat helps to secure the essential resources provided by Asia's high mountain regions, from food, clean water, and medicines, to regulation of climate conditions, and educational, cultural and spiritual value. These ecosystem services yield benefits experienced by people locally, regionally and around the world.

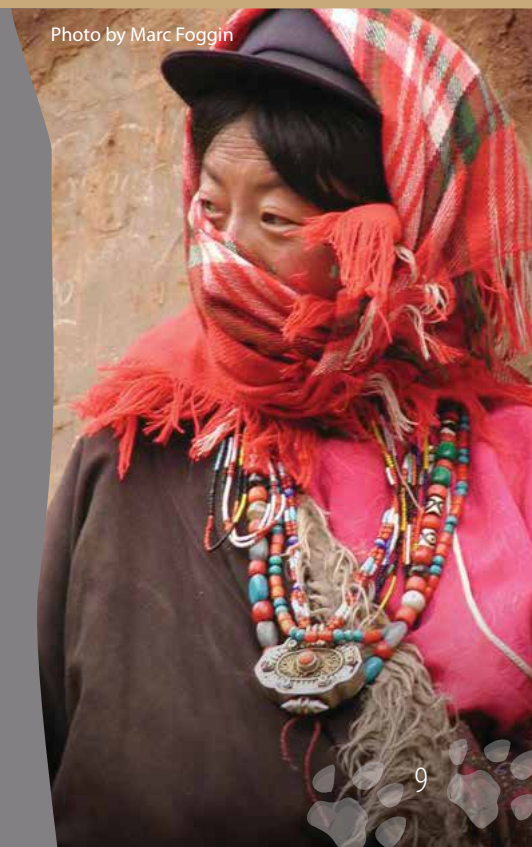


Photo by Marc Foggin

Why are snow leopards and the people of the mountain regions at risk?

Snow leopard populations have declined by 20% in the past two decades, leaving only an estimated 4,000–6,500 individuals in the wild, with an effective breeding population of approximately 2,500. Numerous threats face this irreplaceable cat, ranging from local to global in scale. Significantly, these same threats negatively impact humans, imperiling the health, quality of life, and even survival of those who share the snow leopards' remote high mountains habitat, the billions in downstream regions and those suffering the compounding effects of climate variation around the globe.



HABITAT DEGRADATION FROM OVERGRAZING

Intensification of grazing due to rising human population and growing livestock numbers increases competition with wildlife for the sparse vegetation of the high mountains. Overgrazing weakens a plant's ability to regenerate and continue serving as a food source, leading to a decline in wild prey and insufficient nutrition for livestock. Overgrazing also negatively affects soil and water quality through compaction of fragile alpine soils, preventing infiltration of rainfall and snow melt, leading to runoff and soil erosion, with negative effects all downstream.



HABITAT LOSS AND FRAGMENTATION

As solitary hunters, snow leopards claim vast territories in order to pursue the widely dispersed prey of the high mountains. When poorly planned, large-scale infrastructure development, such as hydropower dams or mining operations, encroach on these territories, decreasing the land's ability to support viable populations of snow leopards. Construction of highways and railways cut across previously unbroken landscapes, encouraging further development in previously inaccessible areas and introducing barriers to safe wildlife migration.

LOCAL



HUMAN-WILDLIFE CONFLICT

Decline in the snow leopards' wild prey coupled with the expanding herds of local pastoralists results in increased predation on domesticated livestock. For herding women and men scraping a living in the remote high mountains, losing even one animal can be a devastating financial loss. This conflict leads herders to kill snow leopards and other predators in retaliation or as a means to prevent further harm to their livelihoods.



LACK OF LANDSCAPE-SCALE PLANNING AND TRANSBOUNDARY COOPERATION

Officially protected natural areas encompass only a small fraction (about 6%) of potential snow leopard habitat in the high mountain ranges. Maintaining area suitable for wildlife, traditional pastoralism and the ongoing function of vital ecosystem services requires coordination and planning over enormous landscapes which often span the borders of neighboring nations. Lack of joint planning by agriculture, infrastructure, energy and other sectors at a landscape-scale, as well as lack of cooperation between adjoining countries contributes to the degradation of habitat and hinders efforts to curb illegal wildlife trade.

REGIONAL



CLIMATE CHANGE

The Intergovernmental Panel on Climate Change (IPCC) reports that at high elevations, warming is occurring at approximately three times the global average. Rising temperatures and increasingly erratic weather patterns have spurred the rapid retreat of Asia's high mountain glaciers, the thawing of permafrost and a shift in treelines and associated habitats to higher elevations. The changing landscape produces less rain and snow locally, drying up the grasslands depended on by snow leopard prey and domestic herds alike. Furthermore, reduced river levels and decreased rate of flow endangers the water supplies used by nearly 60% of the world's population. Loss of the high mountain ecosystem's climate regulating functions compounds the changes occurring at a global level, with effects felt around the world.

GLOBAL

POACHING AND ILLEGAL WILDLIFE TRADE

The beauty and cultural significance of snow leopard skins, bones, teeth and other derivatives drives an opportunistic trade in illegally poached and trafficked animals. The remoteness of snow leopard territory and the many international borders that run through it facilitate these activities and make it difficult to patrol and enforce anti-poaching and anti-trafficking laws. Possible involvement by organized crime syndicates, known to be heavily involved in the lucrative global wildlife trade, would further undermine quality of life in the region.



Underlying problems, such as poverty, weak natural resource governance and policies, insufficient scientific knowledge and an eroded affinity for nature, create conditions where these threats can arise. Poverty drives overuse of natural resources as families rely on the resources at hand in the struggle to survive day to day. Weak governance and policies facilitate unsustainable land and resource use, low institutional capacity, corruption and illegal trade in wildlife, as well as contributing to the ongoing poverty and marginalization of remote mountain inhabitants. Rapid urbanization detaches the human population from nature, leading to a loss of traditional knowledge and cultural diversity, as well as a lack of collective will to support biodiversity and conservation in the marketplace and policy arenas. Finally, inadequate scientific study and knowledge of snow leopards and their ecosystems due to low government priority and funding prevents the most effective use of scarce resources for conservation.



SECTION 2

Interventions

Photo by Steve Winter/National Geographic Creative

To effectively conserve the high mountain ecosystems for the benefit of snow leopards and humans, our projects employ a comprehensive strategy to address threats across the spectrum, from local to international. Each project is designed with a suite of interventions aimed at achieving direct conservation results as well as creating a political and social environment that facilitates sustainable change and enables countries to accelerate achievement of the Sustainable Development Goals (SDGs). This includes a range of social, economic and environmental benefits for local women, men and the society at large for both the short- and longer-term. The following stories highlight one aspect of each multi-faceted project as an example of how these strategies may be operationalized. Additional "Partner Spotlights" show a sample of complementary activities by other GSLEP partners as we work in tandem toward achieving the GSLEP countries' goals.

GLOBAL SNOW LEOPARD AND ECOSYSTEM PROTECTION PROGRAM (GSLEP) FRAMEWORK

As signatories of the Bishkek Declaration and parties to GSLEP, the 12 snow leopard range countries have agreed to work together toward an overarching goal of securing 25% of the global snow leopard range in 23 distinct landscapes by 2020, covering critical habitat areas in all 12 countries. All but one cross or adjoin international borders. The GSLEP framework integrates snow leopard conservation with the local and global economy, ensures landscape-level transboundary conservation, and builds capacity for a cross-sectoral response to threats and barriers. Management plans developed by the range countries will direct conservation efforts within each landscape, based on a number of key objectives. First among them is engaging local communities in the conservation process. A second priority is effective management of both snow leopard habitat and prey species. Other key objectives include combatting poaching and illegal trade, transboundary management and enforcement, engaging industry, institutional capacity building and policy enhancement, scientific research, and building awareness about the importance of, and threats to, snow leopards and the high mountain ecosystems. Efforts to achieve GSLEP objectives are being led by range country governments with both technical and financial support from a host of international and national organizations.

EACH COUNTRY-SPECIFIC SNOW LEOPARD PROJECT IN THE UNDP-GEF PORTFOLIO HAS BEEN FORMULATED WITH COMPONENTS TO ALIGN WITH ALL EIGHT KEY OBJECTIVES OF THE GSLEP FRAMEWORK.

MAJOR INTERNATIONAL GSLEP PARTNERS



SECURING SUSTAINABLE LIVELIHOODS

The Changpas people are high-altitude pastoralists of Ladakh and the State of Jammu and Kashmir. Some among them are still nomadic, moving with their yaks and goats from the wintering grounds of Hanley Valley up to the summer pastures near the village of Lato, high in the Indian Himalayas. This territory—known as the *Changthang* landscape—is characterized by extensive plateau, lake and river basins, and rolling hills. Pastoralism dominates this and the three other high altitude landscapes targeted by this project—*Lahul-Pangi* (Himachal Pradesh), *Gangothri-Govind* (Uttarakhand) and *Kanchenjunga-Upper Teesta-Tso Lhamu* (Sikkim).

PROJECT TITLE

Securing Livelihoods, Conservation, Sustainable Use and Restoration of High Range Himalayan Ecosystems (SECURE-Himalayas)

COUNTRY

India

EXECUTING PARTNER

Indian Ministry of Environment, Forests and Climate Change

PROJECT PERIOD

2017-2023

GEF FUNDING

\$11,544,192

CO-FINANCING

\$40,343,000

Demand for livestock and competition for pasture has grown with an upsurge in human population. In the absence of other livelihood options, local communities have steadily increased the number of domestic livestock grazing on the fragile soils and sparse vegetation of the alpine landscape, leading to loss of productivity and severe degradation of the very ecosystems on which their livelihoods depend.

The native wildlife of the region depends on these same natural resources. As plant productivity dwindles, so does the population

of wild herbivores that feed on them, increasing the chances that snow leopards and other predators will hunt domestic livestock in order to survive. Retaliatory killing of predators to protect livestock disrupts the balance of the food web, intensifying ecosystem degradation and the losses experienced by families working to make a living in this challenging environment.

To address this negative cycle, in addition to larger landscape mapping and management initiatives at the regional level, the local-level aspect of this project focuses heavily on securing local livelihoods for men and women that reduce dependence on the delicately-balanced snow leopard ecosystems. The project will achieve this through a three-pronged strategy of enhancing existing livelihoods, providing alternate and new livelihood options and supporting skill-based employment opportunities.

The project will boost access to technical services and improved technology and practices that can deliver significant enhancements to current livelihoods, such as on-farm



A Changpa man prepares a sheep for shearing. Photo by UNDP India.



agro-biodiversity management, integrated pest management and improved seed, as well as encouraging the revival of traditional pastoral practices, such as rotational grazing. Diversification of the agricultural economy provides new livelihood options, such as fruit and jam production and bee-keeping. Innovative technologies further improve commodity prices, such as green energy (micro-hydro, solar) for community-based processing, drying and cooking, or improved storage, packing, and transport methods to reduce product damage. Along with training in sustainable harvesting practices, these technologies also enable communities to benefit from their rich traditional knowledge of wild medicinal and aromatic plants, enabling them to directly process and sell their products rather than accepting a meager share of the plants' value from middlemen who

dominate the trade. Finally, the project will promote skill development for non-farm employment in tourism and related sectors. Capacity building in natural resources management will also create employment opportunities through community-based snow leopard landscape management programmes in partnership with the government.

In addition to many female-headed households, in herding societies, all women play a large role in livestock rearing and management, making gender-sensitive planning and inclusive interventions critical to project success. Following a participatory planning process, the women and men of project communities will develop micro-plans for livelihood diversification. Connecting these communities with appropriate government- and partner-funded livelihood and

enterprise development initiatives that align with the micro-plans then becomes central to the project's implementation. In this way, across the four landscapes around 37,000-40,000 farmers and pastoralists will directly benefit from project efforts to secure a diverse range of livelihood options that decrease dependence on limited natural resources, offset losses and reduce opportunity costs, making effective snow leopard conservation beneficial for local communities like the Changpas.

PHOTO CREDITS: 1) A Changpa woman spins wool into thread. Photo by UNDP India. 2) Processing wool from the Changthang landscape. Photo by UNDP India. 3) A Changpa herder. Photo by UNDP India. 4) Beekeeping provides an alternative source of income for herding families. Photo by Marc Foggin. 5) Wild aromatic and medicinal plants may be harvested sustainably for income. Photo by Marc Foggin.



PARTNER SPOTLIGHT

Healthy Herding

Subsistence herders in the remote mountains of northern Pakistan lose more livestock to disease than to depredation. So why is retaliatory killing of snow leopards so prevalent? The all-too-frequent occurrence of losing quantities of livestock to disease undermines a herder's financial stability, causing even one loss due to a snow leopard attack to result in severe economic hardship. With little or no access to vaccines that would protect their

herds from preventable diseases such as plague, anthrax and rabies, herders resort to wiping out predators as the only means to protect themselves from financial disaster.

The Snow Leopard Trust and Snow Leopard Foundation Pakistan actively work to help pastoral communities in Pakistan gain access to livestock vaccines. An independent review conducted in 2014 has shown that livestock mortality could be reduced by 50% under the

programme. Securing a stronger financial footing through healthier herds makes it more feasible for families to support conservation, rather than eradication, of snow leopards. Additionally, vaccinations limit the spread of disease from domesticated sheep and goats to their wild relatives, preventing outbreaks that could devastate the wild prey populations that snow leopards depend upon for food.

LESSONS LEARNED (KAZAKHSTAN)

Although in some cases strict non-use of a natural resource may be necessary, such as for an endangered species, projects emphasizing sustainable use prove more effective for achieving conservation objectives. The SECURE-Himalayas project applies this lesson to local livelihoods, learning from the successful outcomes of the UNDP-GEF "In situ Conservation in Kazakhstan's Mountain Agrobiodiversity" project which took place from 2006-2012, conducted in part within snow leopard habitat and GSLEP landscape of Alatau National Park. SECURE-Himalayas promotes 'sustainable' livelihood options, such as raising livestock under sustainably-managed grazing routines, as well as 'alternative' livelihoods that require no consumption of natural resources, such as tourism. Alternative livelihoods may remove the sense of value that a community member feels toward a previously relied upon resource, thus losing the incentive to safeguard it. Sustainable use, on the other hand, retains resource value and promotes stewardship. An appropriate balance of sustainable use and non-use options must be found for each local situation.

UZBEKISTAN

MINIMIZING HUMAN-WILDLIFE CONFLICT

Though the slopes of the Chatkal, Pskem and Ugam Ranges in the Western Tien Shan and the Gissar ridge in the Pamir Alai mountains are home to both humans and wildlife, co-existence is not always easy. Increasingly, snow leopards and people are coming into direct conflict as this endangered cat kills domestic livestock in rural household (*dekhan*) farms.

One of the key issues fueling human-snow leopard conflict is the decline of the snow leopard's wild prey, such as blue sheep, Asiatic ibex, and argali. The numbers of these prey species have significantly declined due to habitat degradation and competition for forage with increasingly large domestic livestock herds that graze in Uzbekistan's montane forests, steppes and sub-alpine meadows. Livestock grazing is intense and unsustainably managed, resulting in severe land degradation, including reduced productivity, soil erosion and desertification.

With their key food source declining, snow leopards are increasingly turning to another food source—domestic livestock, the loss of which brings significant economic hardship to the local herders. As a result, herders resort to retaliatory killing of snow leopards, both directly and opportunistically, as snow leopards unwittingly get caught in traps or ingest poison set out for other predators, such as wolves.

The government and partners are determined to address, among other issues, the human-snow leopard conflict in Uzbekistan through

a multifaceted approach in two landscapes: Ugam-Chatkal National Park and Gissar Special Nature Reserve (also an identified GSLEP landscape) and their buffer zones. The project will work closely with local communities to prevent conflict by renewing the snow leopards' primary food base—wild ungulate populations—though restoration of the degraded high-altitude pastures and forests in the snow leopard range. It will encourage a more collaborative approach to sustainable pasture and forest management practices as well as provide incentives to pastoralists to shift to alternative income-generating enterprises, including opportunities for women. Additionally, the project

PROJECT TITLE

Sustainable Natural Resource Use and Forest Management in Key Mountainous Areas Important for Globally Significant Biodiversity.

COUNTRY

Uzbekistan

EXECUTING PARTNER

State Committee on Nature Protection

PROJECT PERIOD

2016-2021

GEF FUNDING

\$6,209,863

CO-FINANCING

\$25,000,000



Guard dogs can help keep livestock safe from predators in the wide open grasslands. Photo by Marc Foggin.

will encourage the adoption of more efficient energy technologies to reduce the extent of tree clearing in alpine forest habitat for household heating and cooking needs.

Keeping snow leopards physically separated from the livestock is another conflict prevention strategy that the project will deploy. Most *dekhan* farmers typically send their herds to graze in the open, unsupervised or guarded by children. Even when they exist, many of the corrals for livestock are poorly constructed and easy for predators to penetrate. The project will support pastoralists to construct

predator-proof enclosures and procure technologies such as electric fencing, predator-proof collars and livestock guard dogs.

Another important component of the project is to adequately address the damage incurred when prevention measures fail. Reducing preventable livestock mortality through improved access to veterinary services and vaccinations is one project strategy to help families better withstand the financial shock of losing an animal to a predator. The project will also establish local insurance schemes to provide compensation for depredation events

by native wildlife. Community liaison officers and an independent wildlife specialist will process and evaluate these claims.

Given the impact that livestock depredation has on local communities, it is understandable that snow leopards are commonly viewed as a threat. To foster tolerance towards snow leopards, the project will conduct education and outreach programmes to improve awareness about the value and importance of conserving snow leopards, their prey and their habitats.



PHOTO CREDITS: 1) Open corrals offer little protection from snow leopards or other hungry predators. Photo by Marc Foggin. 2 and 3) Solid walls and a predator-proof roof structure keep livestock safer from snow leopards, and snow leopards safer from herders. Photo by Snow Leopard Trust. 4) Photo by Kachel/Panthera/Academy of Sciences Tajikistan/U. Delaware.

PARTNER SPOTLIGHT

Put a Roof on it

Five rolls of mesh wire, five wood boards, and a bag full of nails and hooks can go a long way to conserve snow leopards. This is approximately the amount of materials required to fortify an existing medium-sized corral by building a new snow leopard-proof roof structure.

On the eastern Pamir plateau in Tajikistan, local herders keep their domestic livestock in a mix of private corrals and larger communal corrals. All these structures either lack a roof entirely or have a roof with a square opening for ventilation purposes.



All too often, a snow leopard climbs into the corral, kills the livestock—often tens of sheep and goats at a time—and then is unable to escape. The herder then enters the corral, surprises the snow leopard, grabs a shovel and kills it. Or the cat escapes through the door while the herder enters, but then the herder sets a steel-jawed leg trap for the cat when it returns the following night.

The herder next sells the pelt and the bones of the snow leopard to recoup some of the money lost due to the killed livestock. An intermediary generally buys the pelt and the

bones for a few hundred dollars and resells it for a few thousand dollars. Weak law enforcement and corruption compound the problem, making it easy to move snow leopard parts out of the country.

Since 2013, Panthera has fortified or built 127 predator-proof corrals, providing the design and guidance while communities provide the manpower. Since then, none of the livestock using these corrals have been harmed by a snow leopard or any other predator. Herders across the Pamirs who once killed snow leopards for retaliation and to eventually sell their skins, are now our key intelligence gatherers, alerting authorities to confiscate traps and pelts.

SNOW LEOPARDS IN LITERATURE

The elusive and majestic nature of snow leopards has been a source of intrigue for millennia. References to the snow leopard are found in ancient and modern literature across Asia and the western world. Before written language, humans expressed the importance of snow leopards and their ungulate prey through rock carvings that persist to this day. One of the earliest written references to snow leopards can be found in the 1,000-year-old oral epic, “Manas”, which chronicles the journeys of ancient Kyrgyz heroes. In the acclaimed novel, “The Snow Leopard”, contemporary author Peter Matthiessen tells of his travel through Nepal in search of seeing a snow leopard in the wild. Chingiz Aitmatov, one of Kyrgyzstan’s most famous contemporary authors, captures the powerful symbolic value of snow leopards to Kyrgyz culture in his 2006 novel, “When Mountains Fall”. In a 2007 interview, Aitmatov spoke eloquently on the need for coexistence:

“Man’s relations with nature are also becoming a problem in Kyrgyzstan . . . We used to breed our animals, roamed on horseback through the mountains, and hunted with bows and arrows for our essentials. Today, tourists . . . fly through our mountains on helicopter and hunt down the last of the snow leopards with high tech rifles and precision sighting telescopes. Man is encroaching on nature with increasing brutality. We have to learn instead to cooperate with nature.”



Photos by Snow Leopard Conservancy (top) and Matthias Fiechter/Snow Leopard Trust (bottom).



PARTNER SPOTLIGHT

Freeing a Mongolian Mountainside

WWF Mongolia sprang into action when camera traps on Jargalant Khaikhan Mountain caught footage of a snow leopard with a steel jaw trap around his leg and two others missing a leg entirely. They enlisted the help of local children to campaign against the harmful practice of setting traps to protect livestock

from predators. The children of herders bravely spoke out at local community meetings and initiated an innovative trap exchange programme, visiting households around the herding landscape, offering useful items, such as milk cans, in exchange for traps. Through their efforts, 250 traps were removed from the mountain, greatly reducing the potential for further harm to snow leopards.



After meeting a group of these children in April 2016, Mongolia's Minister of the Environment issued a directive for trap-elimination programmes to be initiated throughout the country.

PARTNER SPOTLIGHT

When Prevention Isn't Enough

To help herders cope with predation losses when prevention measures fail, the Snow Leopard Trust has started community-run livestock insurance programmes in India and Mongolia. In these programmes, the local community manages a pool of money specifically designated to reimburse families who lose domestic animals to snow leopard predation. A herder may submit a claim to a committee made up of local residents and receive reimbursement for the loss. The Snow Leopard Trust provides the funding required to build a strong financial foundation, and each participating herder

contributes a premium that maintains the account. Over time, the programme becomes financially self-sustaining.

In order to participate, each herder must sign a conservation agreement in which they pledge to protect the snow leopards and wild prey species in their area from poaching. If any community member violates this contract, they are no longer able to participate in the insurance programme. Additionally, a small annual bonus is paid out from the insurance fund to the participating herder who loses the fewest animals to predation. This creates a financial incentive to prevent snow leopard access to herds by increasing herd safety and herder vigilance.

As part of the insurance programme, communities also agree to leave more food for the snow leopard's wild prey by setting aside graze-free areas. In some cases, the lost ability to use this land can cause a hardship on the community, so conservationists work together with community leaders to determine a fair price for compensation, which is paid for separately from the insurance fund.



PHOTO CREDITS: 1) Traps collected on Jargalant Khaikhan Mountain by Mongolian students. Photo by Selenge Gantumur/WWF Mongolia. 2) Student leaders pose in front of a sculpture created from the collected traps, celebrating the wildlife of western Mongolia. Photo by Selenge Gantumur/WWF Mongolia. 3) Photo by Marc Foggin.

CHINA

CO-MANAGEMENT ON THE ROOF OF THE WORLD

Green pasture surrounds craggy ridges and snowy peaks rising high above deep meandering valleys. This is where three great rivers—the Yellow, Yangtze and Mekong—wind away from one another in the centre of the Tibetan Plateau. The area also serves as a significant controller of the Asian monsoon system that affects the climate of 3 billion people.

The Sanjiangyuan (Three Rivers) National Nature Reserve (SNNR) in China's Qinghai Province is nearly four times as large as Switzerland. It is home to the snow leopard, Tibetan antelope, wild yak and black-necked crane; all threatened with extinction. It is also home to 200,000 people—mainly Tibetan herders. These people, and billions of people living downstream, rely on this fragile environment to meet their basic needs and generate local livelihoods.

Cuochi Village, with its three hamlets and 230 households, is in the heart of snow leopard habitat in SNNR. Aerial

photographs of the village are posted on the wall of the community centre showing the boundary of the zoning area and wildlife icons depicting frequency of sightings. There is also an organization chart indicating the members and structure of the co-management committee. The community signed a co-management agreement with the SNNR authority and the Qinghai Forestry Department (QFD). This agreement provides the community full autonomy in conserving wildlife and protecting the environment on their 240,000-hectare grassland area. If the agreed conservation targets are achieved,

PROJECT TITLE

Strengthening the Effectiveness of the Protected Area System in Qinghai Province, China to Conserve Globally Important Biodiversity.

COUNTRY

China

EXECUTING PARTNER

Qinghai Forestry Department

PROJECT PERIOD

2012-2017

GEF FUNDING

\$5,354,545

CO-FINANCING

\$18,349,000

SNOW LEOPARDS AND TIBETAN BUDDHISM

Prevalent throughout approximately 80% of global snow leopard range, Tibetan Buddhist monasteries teach compassion and respect for all living beings, exerting quiet but profound influence on the attitudes and behaviors of nearby inhabitants. Often situated near sacred mountains or other remote holy sites, these institutions have advocated for the protection of the high mountain landscapes and their wildlife for centuries.

The Everest Snow Leopard Conservation Center in the central Himalayas honors this rich history while raising awareness about snow leopard conservation through a booklet, "Snow Leopard and Hermit", which it distributes among local residents. The story, collected and written by Tashi Sange, a well-known Tibetan monk and conservationist, recounts the experience of Samdain Lama, a monk who retreats to a solitary mountain cave for meditation, living in peaceful coexistence with a snow leopard and her cub.



"The Snow Leopard and the Hermit," illustration by Cicheng Nima. Photo by Everest Snow Leopard Conservation Center.

the community receives a small financial contribution which can be disbursed at its own discretion—for health and education primarily.

Cuochi village was provided with wildlife monitoring equipment and engages in patrolling and monitoring activities for snow leopards and other species. Based on the lessons learned from preceding community conservation projects supported by various NGOs including Plateau Perspectives, two complementary approaches are employed: 1) people with good knowledge about wildlife (such as former hunters) serve as wildlife monitors (park wardens), undertaking transect surveys four times a year, noting both direct animal sightings and signs such as claw scrapes and scat; and 2) automatic camera traps are placed in the same areas to allow individual identification.

The project has so far facilitated finalisation of protected area co-management agreements with 17 pilot villages, including establishment of co-management committees and plans. The project has also facilitated development of a community natural resources management plan and produced a range of manuals covering monitoring and patrolling, community traditional knowledge, and a co-management operational manual.

In the past the government's policy was to relocate the herders to urban areas in the name of habitat protection. Now families—mainly indigenous and ethnic minorities—are given a choice to remain on their land. “We are determined to continue our co-management operation after the project closure,” said the Cuochi village leader. “We plan to register ourselves as a community based organization—a legal entity.”

In the remote mountain regions where snow leopards live, local herders are the eyes and ears for the species protection. Co-management and co-existence are the only ways to ensure survival of the magnificent species and sustainable development of the mountain regions.

CHINA IS CRITICALLY IMPORTANT FOR SNOW LEOPARD CONSERVATION CONTAINING 60% OF THE WORLD'S SNOW LEOPARD HABITATS. More

than half of snow leopards spend part or all of their lives in China. This is no surprise given that ten out of the other 11 snow leopard range countries share their borders with China—over the towering mountain ranges of Altai, Tian Shan, Kunlun, Pamirs, Hindu Kush, Karakoram Tibetan Plateau and Himalayas. GEF and UNDP currently support strengthening of PAs in the Chinese side of the Altai Mountains through the projects CBPF-MSL:

Strengthening the management effectiveness of the protected area landscape in Altai Mountains and Wetlands and Strengthening the PA system in the Qilian Mountains-Qinghai Lake landscape.



PHOTO CREDITS: 1) Training session of one of the very first community-based wildlife monitoring teams in the heart of the Tibetan Plateau, Qinghai Province, China, co-organized by the Upper Yangtze Organization and Plateau Perspectives. Photo by Marc Foggin. 2) Tent homes dot the grasslands of Qinghai Province. Photo by Marc Foggin. 3) Photo by Marc Foggin. 4) Wild Yak (*Bos mutus*). Photo by John MacKinnon.

PARTNER SPOTLIGHT

Governments and Governance

The Wildlife Conservation Society (WCS) has dedicated 20 years to a programme to protect the high mountain landscape of Gilgit-Baltistan Province in Pakistan, home to the snow leopard and key prey species, the Siberian ibex and the flare-horned markhor. WCS has now helped institute over 65 community institutions and trained them to protect and sustainably manage wildlife and other resources. Based on lessons learned and best practices developed through this ongoing work, WCS initiated a scaled-up version of this programme in Afghanistan, focusing on the snow leopard landscape of the Wakhan Corridor.

One major focus of this multi-sectoral programme in Afghanistan has been to build the capacity of government officials to draft environmental laws and conservation policy. At the same time, the programme works



to strengthen the governance capacity of local community organizations in snow leopard territory. WCS aided in the creation of an overarching community institution, the Wakhan Pamir Association (WPA), consisting of democratically elected representatives from all of the communities across the Wakhan District, with over 50 community rangers. In 2014, this work resulted in the establishment of Wakhan National Park, covering over 10,000 km² and protecting roughly 70% of snow leopard habitat in the country. The park is designed as a co-managed protected area, with management responsibilities shared between the local communities and government.

To further support Afghanistan's fledgling Protected Area system, WCS is currently working with the Afghanistan



Government to implement a UNDP-GEF project entitled "Establishing integrated models for protected areas and their co-management in Afghanistan." Beginning in 2014, this project provides targeted capacity building for effective co-management of Wakhan National Park and promotes community conservation of snow leopards through ranger surveys and patrols, predator-proofing corrals, and outreach and education.

LESSONS LEARNED (RUSSIA, MONGOLIA, AND KAZAKHSTAN)

Shifting protected area (PA) management from exclusive government operation to inclusive community co-management requires synergy among three things: community members, government agencies, and national legal and policy framework. Mobilizing and building the capacity of people living in and around PAs to practice sustainable natural resources management is not enough. Government agencies, tasked for years with excluding people from encroaching on PA land, must likewise experience a shift in mindset toward sustainable use of natural resources. Finally, the legal and policy framework of the nation must then accommodate these activities in order for lasting, widespread change to occur. The integration of these three components is a lesson learned from three 'sister' projects concluded in 2011, to improve conservation of the Altai-Sayan Ecoregion spanning the borders of Russia, Mongolia and Kazakhstan. The current UNDP-GEF projects in China's snow leopard landscape put this lesson into action, staging interventions at all three levels to ensure effective and sustainable co-management of the Sanjiangyuan (Three Rivers) National Nature Reserve in Qinghai Province.

PHOTO CREDITS: 1) Mawristan area, Shikargah Valley of Big Pamir, Wakhan Corridor, Afghanistan. Photo by WCS Afghanistan. 2) WCS works to strengthen the governance capacity of local community organizations in snow leopard territory. Photo by WCS Afghanistan.

KAZAKHSTAN

STRENGTHENING AND EXPANDING PROTECTED AREAS

Snow leopards require large areas of land to survive and thrive, depending on vast mountain and forest corridors as natural 'bridges' for their genetic mixing and interactions. Although Kazakhstan has protected approximately 8% of its total land area, only an estimated 30-35% of the nation's snow leopard range lies within this protected area (PA) network, resulting in habitat fragmentation and disconnectivity as human activity encroaches on unprotected parcels. Moreover, critical wildlife habitat both within and outside of the PA network are facing severe degradation due to inadequate land management, unsustainable exploitation of natural resources, unregulated expansion of tourism, overgrazing by livestock, and climate change.

PROJECT TITLE

Conservation and Sustainable Management of Key Globally Important Ecosystems for Multiple Benefits

COUNTRY

Kazakhstan

EXECUTING PARTNER

Forestry and Wildlife Committee of the Ministry of Agriculture

PROJECT PERIOD

2017-2022

GEF FUNDING

\$8,069,178

CO-FINANCING

\$24,000,000

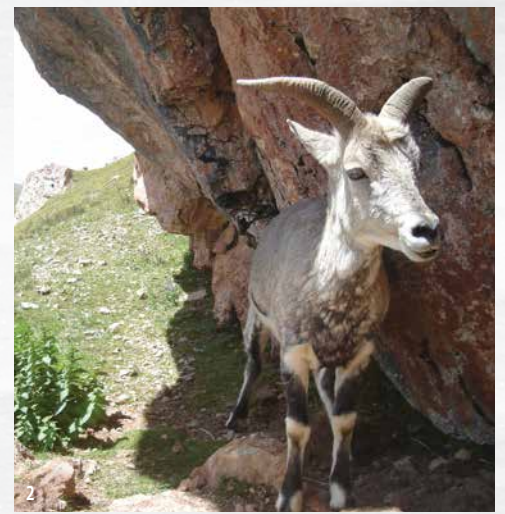
To address gaps in bio-geographical coverage, this project will focus on expanding the existing PA estate in accordance with a national plan prepared by the Government of Kazakhstan. It will focus on creating new PAs through increasing the total share of several critical, yet underrepresented ecosystems within the Kazakhstan PA estate by around 1,890,763 ha. Importantly, some 882,028 ha of this expansion will include mountain grasslands and forest ecosystems—important habitat for snow leopards, including northern corridor habitats that will enable population mixing and viability in a transboundary context.

As part of this process, the project will develop the legal articles for the gazettelement of the proposed PAs, including their zoning arrangements, management regimes, operational and business plans. These plans will contain clearly defined ecosystem management goals and actions for each new PA.

Crucially, this project will also focus on modernizing and strengthening the management effectiveness and financial sustainability of PAs. Particular focus will be placed on forest management planning that meets the standards for High Conservation Value Forests. Forest zoning, inventory principles, timber and non-timber forest product harvesting regimes, will be modified to ensure maximum protection of biodiversity and soil integrity. International cooperation for law enforcement, monitoring and knowledge sharing will also be supported by this project to promote an integrated, landscape-scale approach to management of habitat for globally significant wildlife in Kazakhstan's high mountain ecosystems.



Shandur, Pakistan landscape. Photo by Snow Leopard Trust.



PARTNER SPOTLIGHT

Training of Trainers

Rangers and local communities in protected areas (PAs) are the first and best line of defense for wildlife. They work under difficult circumstances to protect the natural heritage of their country. The Snow Leopard Trust, Snow Leopard Foundation Kyrgyzstan, and INTERPOL have partnered with the Kyrgyz government to help these rangers and citizens in their efforts.

A lack of institutionalized training for rangers reduces their enforcement capacity and puts their lives at risk.

This collaborative project uses a law enforcement training programme designed and led by INTERPOL to train rangers in Kyrgyzstan's PAs on a range of standard enforcement skills, operational planning and crime scene investigation skills. The first trainings were held in Bishkek and Ala Archa National Park in 2015 and 2016, and were attended by 36 trainees. Following the establishment of an INTERPOL-supported capacity building centre, trained rangers will be responsible for carrying out the training of current and future rangers throughout the country.

An additional component of the project is the Citizen Ranger Wildlife Rewards programme which offers public recognition and financial rewards to rangers and citizens who successfully apprehend poachers in PAs and help bring them to justice. A total of 12 rangers and citizens have already received rewards in a public ceremony in Bishkek under the programme so far.



PHOTO CREDITS: 1) Local community members in Chichim, India participate in wildlife monitoring activities. Photo by Snow Leopard Trust. 2) Blue Sheep (*Pseudois nayaur*). Photo by Marc Foggin. 3) Protecting the region's natural heritage can be a source of pride for local communities in and around PAs, such as this example in northern Pakistan. Photo by Snow Leopard Trust. 4) Wolves, lynx and other predators also prowl high mountain Protected Areas in addition to snow leopards. Photo by Everest Snow Leopard Conservation Center. 5) Asia's protected areas harbour diverse plant life, including these alpine wildflowers. Photo by Marc Foggin.

KYRGYZSTAN

LAND USE PLANNING AND BIOLOGICAL CORRIDORS

Ten formal protected areas (PAs) safeguard the ridges, glaciers, valleys and rocky terrain of the Western Tian Shan mountain ranges in Kyrgyzstan, prime habitat for snow leopards. Nevertheless, these conservation zones cover less than 50% of the endangered cat's range within the country. Improving conservation efforts in areas outside of PAs thus becomes a vitally important strategy to preserve viable snow leopard populations.

PROJECT TITLE

Conservation of Globally Important Biodiversity and Associated Land and Forest Resources of Western Tian Shan Mountain Ecosystems to Support Sustainable Livelihoods

COUNTRY

Kyrgyzstan

EXECUTING PARTNER

State Agency for Environment Protection and Forestry;
GSLEP Secretariat

PROJECT PERIOD

2017-2022

GEF FUNDING

\$3,988,575

CO-FINANCING

\$16,500,000

A new project recognizes that buffer zones around PAs, biological corridors that connect otherwise-isolated PAs, and sustainable forest and pasture management in the wider landscape are key not only to the survival of snow leopards and their prey, but also to sustainable local community development. The project will focus on improving land-use planning and management and strengthening the system of PA buffer zones and wildlife migration corridors in two administrative districts, Toktogul and Togustorous. Currently, their forest and land-use plans do not take into account the ecological requirements of species such as snow leopards and their prey which utilize the same land and natural resources as human stakeholders. The project will establish landscape-scale land use planning that takes into account the multiple sectors that utilize the land, from agriculture and forestry to wildlife conservation, tourism, energy and industry sectors.

The project will support the development of a cross-sectoral land-use plan incorporating information describing ecosystem characteristics, natural and anthropogenic processes and

socio-economic data. Geographic Information System (GIS) technology will be used to create maps accurately representing natural and cultural landscapes, soil profiles, wildlife distribution and biomes. Participatory planning methods that incorporate all stakeholders, including women, indigenous peoples, ethnic minorities and other marginalized groups, will be used to ensure that the land-use planning documents balance social and economic development priorities with conservation objectives while fully accounting for the current status of habitat and species conditions, ecological sensitivity and ecosystem services function.

Improved land use as supported by this project also includes the establishment of two new PAs, *Alatai* and *Kanattuu*, covering 102,485 ha of snow leopard habitat. Using the maps and data from the new joint land-use plans, the project will support the delineation and operationalization of buffer zones and wildlife corridors surrounding these areas. Extensive consultation with the stakeholders that use these lands, including male- and female-headed pastoral households, trophy hunters, tourists and mining



Agriculture and other relevant sectors will be included in joint land-use planning of high mountain landscapes. Photo by UNDP India.



companies, will yield agreements regarding conservation-friendly economic activities that allow for continued livelihood activities in a way that minimizes disturbance to wildlife, particularly during the migration and reproductive seasons. Such activities will include managed hunting areas, regulated grazing, ecotourism and harvesting of timber and non-timber forest products according to sustainability principles. Incorporating

the traditional knowledge of the people groups who have co-existed within these habitats for generations will improve conservation success and help preserve the region's rich cultural heritage.

In highly fragmented areas, where land is heavily used, it is critically important to work collaboratively with all stakeholders and sectors to ensure that the wider landscape matrix

surrounding the strictly protected zones can accommodate biodiversity conservation as well as sustain communities. Through this project, the government will not only expand the national PA network, but ensure that biodiversity and wildlife conservation needs, including those of snow leopards, are effectively considered and integrated in the wider, productive landscapes that surround these PAs.

LESSONS LEARNED (BHUTAN)

The Kingdom of Bhutan has been a leader in advancing the concept of biological corridors that connect core habitat areas in a fragmented landscape. Supporting the operationalization of Bhutan's planned system of corridors, the UNDP-GEF project "Linking and Enhancing Protected Areas (LINKPA)" in collaboration with WWF, concluding in 2008, yielded valuable lessons now incorporated into current projects in other snow leopard range countries. One such lesson is to demarcate and establish bio-corridors concurrently with the gazettement of new protected areas (PAs). New PAs are likely to be established in core habitat areas surrounded by relatively intact natural landscapes. Over time, the unprotected landscape may become fragmented and converted for human use. However, pre-established corridors will remain high quality habitat, a great advantage for governments that would otherwise need to conduct costly restoration to establish corridors in a degraded landscape. The current Kyrgyzstan project embodies this lesson by including biological corridors and buffer zones together with plans for two new PAs to protect snow leopard habitat.

PHOTO CREDITS: 1) Community participatory mapping. Photo by Everest Snow Leopard Conservation Center. 2) Few landscapes remain untouched by human land use activities. Here, an infrastructure project is about to start on the Tibetan Plateau. Photo by John MacKinnon. 3) Fragile high mountain soils, such as this loess in Qinghai Province, China, erode easily without the protective cover of vegetation. Photo credit by Marc Foggin.

PAKISTAN

CLIMATE CHANGE ADAPTATION AND RESILIENCE

For subsistence farmers and herders in the dry, rugged mountains of northern Pakistan, every drop of rain is precious, giving life to the crops and pasture vegetation on which their livelihoods depend. Likewise, snow leopards rely on the dependable productivity of these rangelands which provide forage for its preferred prey—wild ungulates, such as markhor, wild sheep and ibex. Although water is scarce and the available land is arid and difficult to cultivate, a predictable climate has provided sufficient conditions to support both people and wildlife for many generations.

PROJECT TITLE

Pakistan Snow Leopard and Ecosystem Protection Programme

COUNTRY

Pakistan

EXECUTING PARTNER

Pakistan Ministry of Climate Change, Snow Leopard Foundation

PROJECT PERIOD

2017-2021

GEF FUNDING

\$4,644,521

CO-FINANCING

\$12,951,000

Now, global climate change threatens to make life in this difficult landscape even more challenging. The effects are already being felt, with irregular weather patterns resulting in erratic precipitation, drought, thawing permafrost and rapidly receding glaciers, impacting not only this region but all of South and Southeast Asia.

The snow leopard project in Pakistan incorporates climate change adaptation into sustainable development and conservation initiatives to build resilience, while at the same time working to mitigate the local drivers that contribute to this global disaster. The project focuses heavily on unsustainable land usage, including overgrazing and deforestation, within three target landscapes: *Gilgit-Baltistan*, *Khyber Pakhtunkhwa* and *Azad Jammu and Kashmir*.

Land degradation compounds the negative effects of climate change. Degraded soils—compacted, cleared of vegetation and subjected to drought—cannot adequately absorb precipitation. Excessive runoff and soil erosion lead to desertification, leaving the land unable to support

livestock or snow leopard prey. The absence of infiltration and groundwater recharge disrupts the water regulating functions of the ecosystem, causing intermittently heavy stream flow and flooding with potentially devastating results for communities downstream. The loss of carbon storage capacity in degraded forests and grasslands further contributes to the root cause of global climate change.

To address these issues, this project will support the formulation of Sustainable Land Management (SLM) and Sustainable Forest Management (SFM) plans for the three target landscapes, covering 4,100,000 ha. The plans will be based on data collected about the region's social, economic and environmental conditions in order to balance human development needs with the imperative to conserve snow leopards and their prey.

Within these landscapes, communities from ten separate valleys will write sub-plans through an inclusive participatory process focused on local needs and priorities. Training and extension support will enable community women and men to



Central Tien Shan glacier, Kyrgyzstan.
Photo by WWF Russia/ Nikolay Kuznetsov.

implement and benefit from plan activities. The focus will be restoration of degraded rangelands and native juniper forests through improved pasture management (such as rotational grazing regimes), sustainable fuelwood collection and fuel efficient stoves. Introduction of silvopastoral practices, community forestry and sustainable cultivation of livestock fodder will also contribute to these objectives. Livelihood diversification will be incorporated to further reduce dependence on natural resources. In total, activities in these ten valleys will improve the climate resilience and well-being of the people and wildlife inhabiting 250,000 ha.

The project will also strengthen the resilience of the protected area (PA) system in the face of a changing climate. 20,000 ha of priority snow leopard habitat will be added to the national PA system, taking into account the conditions that will likely exist as climate change progresses. Biological corridors will likewise be established with future conditions in mind, connecting current areas of core habitat, as well as providing safe passage for mountain wildlife to migrate to new areas as ecosystems shift.

RECOMMENDED CLIMATE-ADAPTIVE MANAGEMENT STRATEGIES FOR SNOW LEOPARDS

1. Ensure that snow leopards have continued access to their natural prey base, particularly as human-driven activities may begin shifting to higher elevations and encroaching on snow leopard habitat.
2. Increase research efforts on snow leopard ecology and behavior to fill information gaps on questions such as susceptibility to disease and genetic makeup. Under a changing climate, exposure to disease may increase. Increased knowledge of snow leopard genetics will give us a better understanding of their adaptive capacity and how best to manage populations.
3. Increase monitoring of population range shifts, changes in phenology, changes in population abundance, changes in behavior and the correlation of any of these with changes in weather and climate.
4. Increase the extent of protected areas to include stepping stones, movement corridors and climate refugia; improve management and restoration of existing protected areas to facilitate resilience. Ensure appropriate policy/enforcement/collaboration for protected area management. These principles should also be applied, to the extent possible, outside protected areas.
5. Reduce pressures from other threats, many of which are likely to be exacerbated by climate change, through increasing the capacity of humans to manage the effects of climate change.

EXAMPLES INCLUDE

- Prevent the encroachment of livestock grazing on snow leopard habitat.
- Prevent persecution of snow leopards for livestock predation.
- Mitigate the effects of hydroelectricity development, mining, etc.
- Minimize habitat loss and fragmentation caused by poor land use, development, etc., on unprotected land.
- Monitor trends (such as an increase in poaching) that might indicate that communities facing increased hardships are turning to methods of earning income that adversely affect snow leopards and other wildlife.
- Help people adapt to the changing climate by promoting alternative livelihoods that conserve ecosystem services and do not negatively impact snow leopards.

Source: Advani, N.K. 2014. *WWF Wildlife and Climate Change Series: Snow leopard*. World Wildlife Fund, Washington, DC.



PHOTO CREDITS: 1) Land degradation intensifies as permafrost thaws due to climate change-induced warming of the high mountain regions. Photo by John Farrington/WWF. 2) Innovative technologies like solar cookers and fuel efficient stoves reduce dependence on wood, preserving the carbon storage capacity of forest and shrublands. Photo by John MacKinnon. 3) Children from herding families in Pakistan's snow leopard landscape will have a brighter future with efforts to build resilience through climate change adaptation. Photo by Bill Hogue/Snow Leopard Trust.

AFGHANISTAN

POACHING AND ILLEGAL WILDLIFE TRADE

The majestic, enigmatic beauty of snow leopards has long captured the human imagination. It is tragic that these exact traits are now endangering snow leopards' very existence. They are ruthlessly hunted for the splendor of their skins, and the traditional medicinal value of their bones and teeth. These, and other body parts and derivatives, are traded in illegal and legal markets around the world. The high demand and value of these wildlife products, when combined with other threats, have dealt a devastating blow to snow leopard populations, which, in Afghanistan, are currently estimated at between 100 and 200 animals.

PROJECT TITLE

Conservation of Snow Leopards and their Critical Ecosystem in Afghanistan

COUNTRY

Afghanistan

EXECUTING PARTNER

Wildlife Conservation Society

PROJECT PERIOD

2016-2019

GEF FUNDING

\$2,692,370

CO-FINANCING

\$9,035,000

Poaching and illegal wildlife trade are problems that confront every country where the snow leopard is found. These issues persist despite the fact that the Convention on International Trade in Endangered Species of Fauna and Flora (CITES) prohibits most international trade in this globally endangered species. In Afghanistan, this project supports the government and partners to fight this criminal trade, working to reduce supply (i.e. poaching) and demand for wildlife products among

consumers, as well as dismantling the networks that facilitate illegal trade.

Snow leopards inhabit the most remote part of northeast Afghanistan, known as the Wakhan Corridor. Nestled between some of Asia's great mountains, bordering Tajikistan, Pakistan and China, this narrow valley is immense at around one million hectares, and is a globally important corridor that connects several snow leopard landscapes.



1



2



3

PHOTO CREDITS: 1) The immensity of the landscape and its extreme remoteness pose a challenge for effective patrolling for poachers and traffickers. Photo by Marc Foggin. 2) Distributing posters that can be hung in homes and community centers provides education that promotes snow leopard and prey conservation for the benefit of the whole community. Photo by WWF. 3) Ecological theatre programmes, such as this WWF project in Kyrgyzstan, involve community members of all ages in raising awareness about the importance of snow leopards to the high mountain ecosystems. Photo by WWF.



The project applies a multidimensional strategy to systematically address, among other issues, illegal poaching and wildlife trade by: 1) enhancing an understanding of wildlife trade and trafficking in Afghanistan; 2) implementing activities to reduce the supply of snow leopard products; and 3) improving the national government capacities and enforcement.

Much about snow leopards remains a mystery due to a dearth of available scientific information and limited research. This project will carry out a full assessment of wildlife harvest patterns, trade markets and market forces that influence the trade in the country. The results of the assessment will be used to establish a system for monitoring trends in wildlife trade, including the activities of harvesters, markets and consumers and to evaluate the effects of education and enforcement efforts.

Community support and participation will be especially important given the remoteness and inaccessibility of this area. Although Afghanistan has enacted laws to protect wildlife and control illegal trade, its capacity to

enforce them in the field is very limited. A range of targeted interventions will be implemented including outreach to Wakhan communities and promoting educational initiatives in the schools. The overall aim is to increase the understanding of the need to protect snow leopards and to enlist local support for coordinating and co-managing anti-poaching and anti-trafficking activities. The project will train community rangers to patrol and report poaching activities.

As a complement to the community-level initiatives, the project will strengthen the capacities of Afghan police, judiciary and customs to increase knowledge and promote better enforcement. Appropriate training materials on the illegal wildlife trade will be developed and incorporated in basic training programmes. The project will also work with the responsible ministries to address gaps related to wildlife protection in the existing legislation, by providing technical guidance, best-practice information and legislative recommendations.



THE NOVEL ASPECT OF THIS PROJECT IS ITS COMMITMENT TO EMBRACE AND DEPLOY EMERGING TECHNOLOGIES. Community rangers will be provided with SMART (Spatial Monitoring and Reporting Tool), pioneered by WCS, as a data collection and management programme. This easy- to-use software will enable rangers to collect, analyze, display and communicate patrol-based monitoring data on wildlife.

The project will also roll out and promote a mobile application for phones that contains information on some 75 species traded in the region. This application will allow enforcement personnel, who generally do not have formal training in natural sciences, to accurately identify illegally traded wildlife species and products on-site—a critically important step in the detection and suppression of wildlife crimes.



PHOTO CREDITS: 1) Community volunteers attend trainings before embarking on patrols of local conservation areas. Photo by Midori Paxton. 2) Photo by Piotr Zaporowski/UNODC. 3) A confiscated snow leopard pelt. Photo by WWF.

PARTNER SPOTLIGHT

Sniffer Dogs Fight Illegal Wildlife Trafficking

A gleeful “tchouuuu” fills the air as N, a dog handler, cheers on her subject. Vesta is one of four dogs chosen to become Kyrgyzstan’s first wildlife detection dogs, and she has just successfully identified snow leopard parts in two randomly placed bags. This is one of many exercises Vesta and the other dogs have performed in order to learn and master new scents. A split second after N’s encouraging shout, a tennis ball bounces off one of the bags, and Vesta, wagging happily, leaps in the air to grab it.

In partnership with the Kyrgyz Customs Service and Working Dogs for Conservation, Panthera trained four dogs (Vikki, Venta, Vesta and Orion), to detect narcotics and snow leopard, argali and ibex parts. Two of the dogs have already been deployed at the Bordobo post between the Kyrgyzstan



and Tajikistan where Panthera built kennels for the dogs. The other two dogs will be deployed soon at the Torugart border post between the Kyrgyzstan and China.

Snow leopard, argali and ibex are the primary illegally-traded species in Kyrgyzstan and in the Central Asia region in general. Yet this trade goes largely undetected because customs and border control personnel are not equipped to find and identify wildlife parts that are often expertly concealed or passed off as legally hunted species. As a result, the skin,

bones, organs and other parts of these three species can be easily smuggled across borders – until now. As demonstrated in sites in Africa and Southeast Asia, trained dogs can skillfully identify the parts of a particular species.

The illegal wildlife trade poses a significant threat to snow leopards and their prey: with the four dogs deployed at border sites identified as hotspots for wildlife smuggling, it will be harder to traffic in illegal wildlife.

PARTNER SPOTLIGHT

Project Predator

INTERPOL's Project Predator focuses on enhancing enforcement capacity to address crimes against Asian big cats, including snow leopards. Project Predator supports the ongoing development of INTERPOL's Snow Leopard and Wildlife Enforcement Network (SLAWEN), which will coordinate with other wildlife enforcement networks, such as

South Asia Wildlife Enforcement Network (SAWEN). Activities include intelligence sharing, joint law enforcement operations, improved forensic technology for wildlife crime investigations and training of officers on the front lines. INTERPOL also supports the development of National Environment Security Taskforces within Central Asian countries to help improve the detection and conviction rates for wildlife crimes.



PHOTO CREDITS: 1) Sniffer dog Venta searches a vehicle at the Bordobo post. Photo by J. Caldwell/Panthera. 2) Rangers put their lives at risk to protect snow leopards and other Central Asian wildlife. Photo by Midori Paxton.

SCIENTIFIC RESEARCH

For the most part, snow leopards prefer to be alone. They choose solitude over companionship to such an extent that there is currently no term for a group of snow leopards. The physical features of these notoriously elusive animals are finely adapted to their surrounding environment. This enables these apex predators to seamlessly blend into rocky ravines and stealthily hunt their prey. These behavioral and physical attributes, combined with the vast expanses, remoteness and inaccessibility of the mountain ranges that they inhabit, make studying and understanding these animals extremely challenging. As a result, much about snow leopards remains unknown.

The paucity of scientific data on snow leopard ecology presents a significant impediment to designing and implementing effective conservation strategies. Many of the 12 snow leopard range countries face significant research, financial and technical capacity constraints. In one of those range countries, Tajikistan, snow leopards inhabit some 85,700 km² of the land, yet only rough estimates of their population numbers are available.

To address some of these issues, a new project will work in five key snow leopard habitats: *Kuraminsky-West-Tien*

Shan; Hissar-Alai; Vakhsh-Darvaz; Badakhshan; and Pamir, simultaneously implementing several strategic interventions. One of these will be to focus on strengthening snow leopard research, monitoring and planning, and building institutional capacities, resources and partnerships.

Several organizations currently undertake monitoring activities in Tajikistan. But these are usually localized, ad hoc efforts that generate highly fragmented data, stored in multiple, at times incompatible, formats. This information is not collated

PROJECT TITLE

Conservation and Sustainable Use of Pamir Alay and Tien Shan Ecosystems for Snow Leopard Protection and Sustainable Community Livelihoods.

COUNTRY

Tajikistan

EXECUTING PARTNER

National Biodiversity and Biosafety Centre

PROJECT PERIOD

2016-2021

GEF FUNDING

\$4,181,370

CO-FINANCING

\$19,610,000



PHOTO CREDITS: 1) Learning more about the interconnected web of life in high mountain ecosystems helps conservationists develop effective management plans that benefit all wildlife. Photo by Wildlife Institute of India. 2) Chitral, Pakistan. Photo by Ahmad Said/Snow Leopard Trust.

or actively maintained in a centralized database. To remedy these weaknesses, the government, in close consultation with the National Biodiversity and Biosafety Centre, the Academy of Sciences, the Forestry Agency and Panthera, will develop, implement and maintain a consolidated national snow leopard monitoring and reporting system and an information management system based on standardized collection procedures and criteria. Both systems will be integrated into Tajikistan's broader Environmental Information Management and Monitoring System currently under development by another UNDP-GEF project.

THE WORLD'S MOST COMPREHENSIVE LONG-TERM ECOLOGICAL STUDY OF SNOW LEOPARDS launched in 2008 in the Tost Mountains of South Gobi, Mongolia. This ongoing study led by the Snow Leopard Trust and Snow Leopard Conservation Foundation of Mongolia partnering with Panthera (until 2012) and the Mongolian Academy of Science, has assembled over eight years of systematic camera trap data, as well as collaring and tracking 20 cats to date. In the rarest of opportunities, the team has also managed to locate three active den sites and examine wild cubs. The study has led to significant insights into snow leopard ecology, including the first-ever scientific papers describing snow leopard population dynamics (rates of growth, survival, mortality, and migration) and home ranges based on GPS data.

To improve data collection, this project will increase the coverage of camera traps, establish a linked database for individual cat identification, and conduct aerial surveys of snow leopards and their prey across their entire range in Tajikistan. The use of radio collars and GPS satellite technology will improve knowledge of movement patterns, habitat use, home range size and dispersal. As a final step, the cost-effectiveness of monitoring snow leopard populations using fecal DNA analysis will be evaluated in a pilot study area.

To build institutional capacity, the project will host a series of specialist training sessions for researchers, scientists, academics, volunteers, students, NGO staff and government field staff. Trainings will focus on the monitoring and reporting system, information management system, monitoring tools and techniques, procedures and standards

for collecting and submitting information, and relevant statistical tools and methods.

Relevant, high-quality and science-based information is required to guide snow leopard management efforts, effectively allocate scarce conservation resources and measure progress. Through this project, the government and its partners hope to establish reliable baseline data to track the effectiveness of snow leopard conservation programmes, identify priority areas for intervention, and facilitate strategic planning, decision-making and adaptive management for the future of Tajikistan's snow leopards and high mountain ecosystems.



PHOTO CREDITS: 1) A Panthera team member sets a camera trap in the Alai-Altyn Mazar landscape of Kyrgyzstan. Photo by Panthera. 2) The community-based wildlife monitoring team from Alichur village, Gorno-Badakhshan province, Tajikistan take a break from surveying ibex, Marco Polo sheep and other wild ungulates to pause for a group photo. Photo by Marc Foggin. 3) Camera traps are the most reliable way to capture data on snow leopard populations. Photo by Panthera/NAS/SAEPF/UW.



PARTNER SPOTLIGHT

Citizen Scientists in Nepal

To better understand the behavior and migration patterns of snow leopards on Kangchenjunga, the world's third highest mountain, WWF uses GPS tracking collars to gather information and track their movements. One cat collared there has repeatedly walked from Nepal to the Indian state of Sikkim and back! All WWF collaring expeditions in Nepal have been carried out with the assistance of local villagers trained as citizen scientists who use camera traps to monitor active snow leopard routes, set snares for snow leopards, and take turns monitoring snare alarms, as well as conducting local monitoring of collared snow leopards using VHF antennas and receivers. The information collected advances knowledge of snow leopard ecology

and helps WWF, the Government of Nepal and partner organizations develop successful conservation strategies.



PHOTO CREDITS: 1) A juvenile snow leopard. Photo by Adriana Dinu. 2) Photo by Marc Foggin. 3 & 4) Tracking snow leopards in the Himalayas. Photo by Everest Snow Leopard Conservation Center. 5) Putting a GPS tracking collar on a snow leopard in the Kangchenjunga Conservaton Area, Nepal. Photo by WWF Nepal.

TRANSBOUNDARY COOPERATION

Just as wildlife does not stay neatly inside the boundaries of formally protected conservation areas, neither does a species confine itself to one side of an international border. Populations range freely across entire landscapes of suitable habitat, unaware of the social, political or cultural boundaries imposed by humans. This fact is particularly relevant to those concerned with the conservation of snow leopards, given that as much as **one-third of all snow leopard range is located on or less than 100 km from an international border.**

PROJECT TITLE

Transboundary Cooperation for Snow Leopard and Ecosystem Conservation

COUNTRY

Global (with focus on Central Asia)

EXECUTING PARTNER

Snow Leopard Trust

PROJECT PERIOD

2016-2019

GEF FUNDING

\$1,400,000

CO-FINANCING

\$3,796,000

Efforts to protect snow leopards and their habitats must respond to unique challenges of snow leopard habitats that physically transverse two or more countries' borders, including the Altai, Tian Shan, and Himalayan mountain ranges. The countries, cultures and languages may be different, but the threats facing snow leopards, high mountain people groups and those in downstream regions are the same. Knowledge sharing is a core component of the transboundary approach, communicating successes, failures, and scientific data so that countries can learn from each others' experiences. Joint planning and implementation of conservation initiatives across ecological rather than political landscapes are also essential. Countries involved in cross-border projects collaborate to determine an equitable division of financial and management responsibilities.

A regional initiative to advance transboundary cooperation in snow leopard range countries is implemented by the Snow Leopard Trust and the GSLEP Secretariat in close collaboration with a consortium of national and international

GSLEP partners. The project, launched in 2016, includes a focus on strengthening transboundary conservation of snow leopard ecosystems by addressing drivers of existing and emerging threats with a focus on Central Asia. Its two-pronged approach involves: 1) generating and sharing knowledge for transboundary landscapes; and 2) establishing global and national monitoring frameworks.

The project will help ensure that key stakeholders have sufficient knowledge and tools to protect stable snow leopard populations in Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan, while supporting the Sarychat/Central Tien Shan mountain range that includes two snow leopard landscapes that share boundaries between Kyrgyz Republic and Kazakhstan.

A major component of the project is to develop a Global Toolkit for transboundary cooperation of snow leopard ecosystems. The project will also train wildlife, PA, border and customs agencies in the targeted countries and the pilot transboundary landscape, as well as



Snow leopard habitat stretches across the border between Tajikistan (foreground) and Afghanistan (background). Photo by Marc Foggin.

SNOW LEOPARD AS CULTURAL-POLITICAL SYMBOL

Across Asia, the snow leopard serves as a symbol of strength and represents a human connection to nature. Both realistic and mythical imagery of the snow leopard are featured on seals of cities and coats of arms in Uzbekistan, Kazakhstan and Kyrgyzstan. In Mongolia, the snow leopard serves as a symbol of the government's vow to preserve wildlife. In Russia, the snow leopard has great cultural significance; historically a snow leopard award was given to climbers who summited the Soviet Union's five 7,000 meter peaks. The Russian people selected the snow leopard as the official mascot of the 2014 Winter Olympic games in Sochi. In Afghanistan, the snow leopard has been featured on coins and postage stamps and is designated as the country's national animal. Similarly, the snow leopard is the National Heritage Animal of Pakistan and the state animal of Himachal Pradesh in India. The snow leopard has been depicted on various currencies, including the Kazakh Tenge 10,000 note. The snow leopard also has been a source of inspiration to artists; sculptures of snow leopards can be found in parks of major cities in Kyrgyzstan and Kazakhstan, as well as in rest stops along major roads, always accompanied by a drinking fountain and a view of the mountains.

Source: *Snow Leopards: Biodiversity of the World: Conservation from Genes to Landscapes*. Editors: Tom McCarthy, David Mallon, and Philip J. Nyhus. Academic Press, 2016.

supporting international cooperation in combating illegal trade in snow leopards and their prey.

The project will also develop a global monitoring framework for snow leopard ecosystems using standard indicators to ensure harmonized monitoring mechanisms for snow leopards, their prey and their mountain ecosystems. A spatial GIS database will be established to hold information from the common monitoring framework, and develop sustainable land management measures for the Sarychat / Central Tien Shan pilot landscape.

By strengthening the capacity of national and local stakeholders for transboundary cooperation the project will aid in the conservation of snow leopards and their habitats, delivering the many benefits that those ecosystems provide—locally, nationally and globally.

PARTNER SPOTLIGHT

Bridging Boundaries

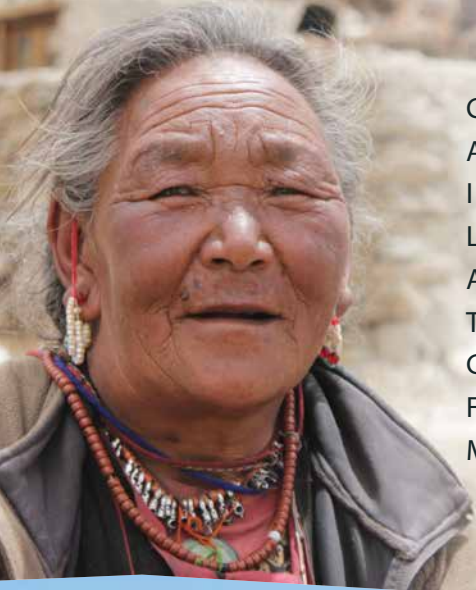
Conservationists face complications when sections of contiguous snow leopard habitat are used and managed differently because they lie in separate nations. The UNEP-administered Convention on the Conservation of Migratory Species (CMS) is an important contributor to the efforts to achieve transboundary cooperation for the protection of the snow leopard, its prey and habitat. CMS in partnership with Fauna and Flora International organized the "Aspects of Trans-boundary Snow Leopard Conservation in Central Asia" workshop where experts from five range countries and their international colleagues examined the state of connectivity between transboundary habitats, reported on any new or existing barriers to free movement and identified knowledge gaps. Together the participants identified eight high priority transboundary landscapes for targeted protection and sustainable management.

By supporting knowledge exchange and collaboration, CMS facilitates landscape-scale habitat protection.

Additionally, through the Central Asian Mammals Initiative (CAMI) and the Argali Single Species Action Plan, CMS specifically targets the conservation of snow leopards and their prey through a set of measures developed by experts and adopted by governments. For example, CMS helps reduce threats to Central Asian wildlife by supporting modifications to infrastructure projects that minimize habitat fragmentation and disruption of migratory routes.



Roads, railways, pipelines and other infrastructure fragment the landscape and pose a danger to wildlife. Photo by John MacKinnon.



CITIZENS FROM 12 COUNTRIES
AND MYRIAD ETHNIC GROUPS
INHABIT THE SNOW LEOPARD
LANDSCAPE OF CENTRAL
ASIA. COOPERATION AMONG
THESE SOCIETIES AND THEIR
GOVERNMENTS IS CRITICAL
FOR EFFECTIVE HIGH
MOUNTAIN CONSERVATION.





PHOTO CREDITS (left to right): TOP: UNDP India; John MacKinnon; Matthias Fiechter/Snow Leopard Trust; Bill Hogue/Snow Leopard Trust. CENTER: Marc Foggin; Wildlife Institute of India; WWF; Wildlife Institute of India; Midori Paxton. BOTTOM: Sandeep Tambe/CCF Sikkim; Snow Leopard Trust; Marc Foggin; Midori Paxton.

PARTNER SPOTLIGHT

Sacred Species, Sacred Sites

The indigenous groups of Central Asia carry a wealth of practical knowledge about plant and animal species and their physical environment, informing their everyday activities, their cultural practices and their spiritual beliefs. Their very ways of perceiving and knowing have been shaped by generations of life within this specific environment. Embracing these knowledge systems and incorporating traditional practices that encourage stewardship of natural resources can yield conservation innovations that could not otherwise be achieved.

A Snow Leopard Conservancy (SLC) programme, Sacred Species, Sacred Sites, works to revitalize ancestral knowledge and traditions about the snow leopard, its habitat and humanity's connection to nature. In partnership with the Worldwide Indigenous Science Network, SLC has built a coalition of Indigenous Cultural Practitioners—shamans, tribal medicine people, sacred site guardians, and revered elders—living within snow leopard range. The programme's Land of the Snow Leopard Network facilitates knowledge sharing through communications



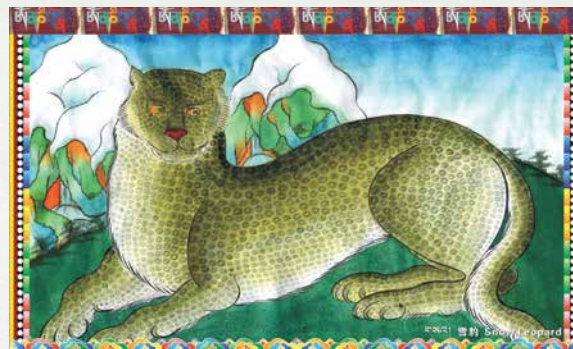
technologies and community gatherings, as well as through establishment of interpretive centers at sacred sites to educate visitors about the ecology and cultural significance of snow leopards.



Photo by Midori Paxton.

SACRED BELIEFS, MYTHS AND LEGENDS

Often called “The Ghost of the Mountains” because of their rare sightings, snow leopards are prominently featured in the folklore and beliefs of mountain communities across Asia. In the Buddhist tradition, the snow lion is a mythical creature who resides in the Glaciers of the Himalaya and can symbolize power, fearlessness, or joy. The snow lion is also present in Tibetan folklore and songs and some believe that holy people can transform into snow leopards. The ethnic Wakhi population located in regions across Pakistan, Afghanistan, China, and Tajikistan believe that *mergichan* or mountain spirits can appear as snow leopards and share their power and knowledge of the natural environment. To ensure that the mountain spirits grant success for their herding activities, communities believe they must demonstrate respect for all aspects of the high mountain ecosystems. In place of the tiger, the Turko-Mongol 12-year zodiac calendar includes the year of the Snow Leopard, considered a year of good luck and wealth. In Nepal, snow leopards accrue a lifetime of sins from killing their prey. If a human kills a snow leopard, these sins are transferred from the animal to its hunter.



A snow leopard as depicted by a contemporary Tibetan artist.
Photo by WWF.

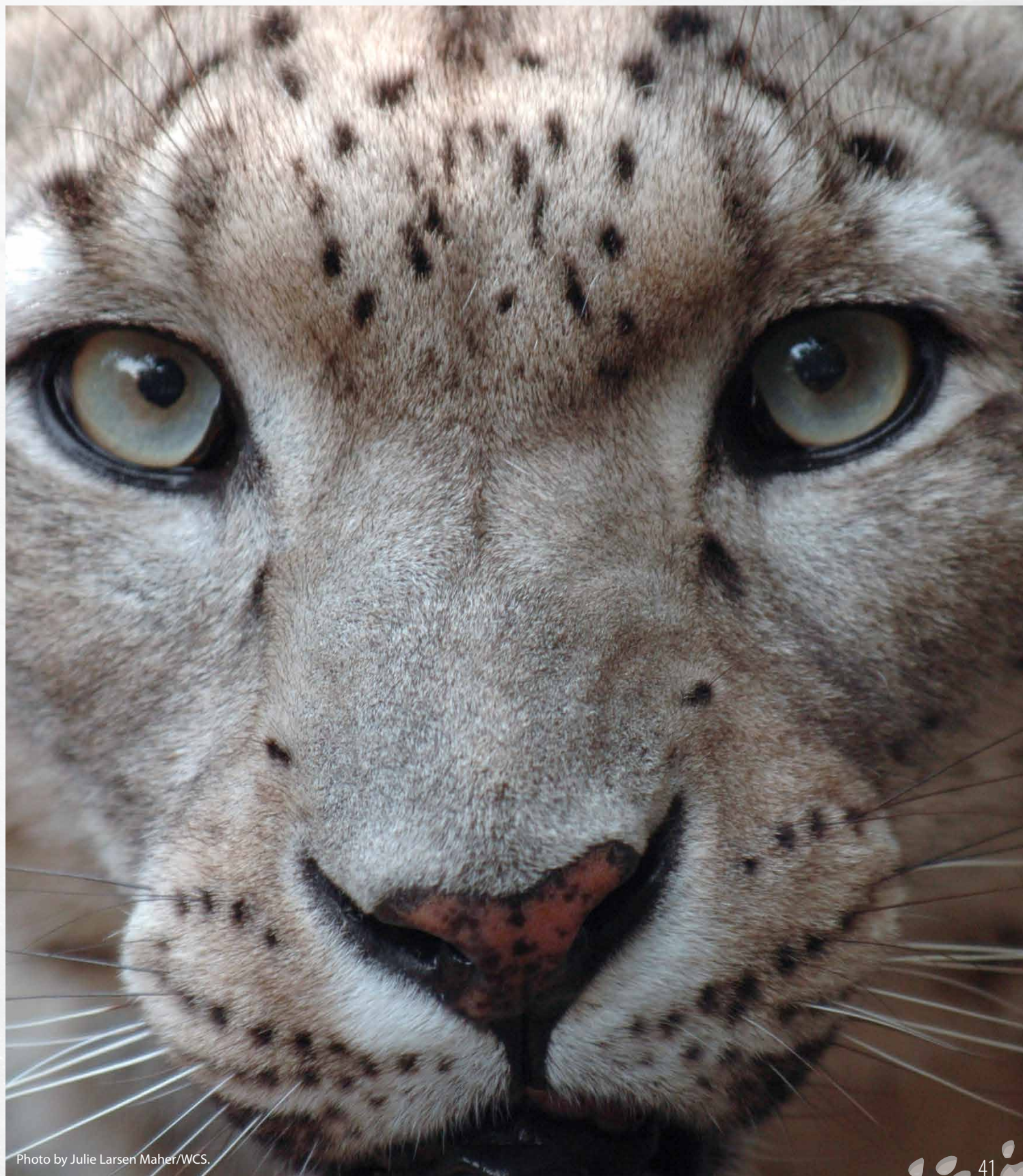


Photo by Julie Larsen Maher/WCS.

GEF SMALL GRANTS PROGRAMME (GEF SGP)



Small projects can have big impact, particularly when designed, implemented and owned by the communities in which they take place. The GEF Small Grants Programme (GEF SGP) implemented by UNDP provides financial and technical support to local and national community-based and non-governmental organizations to address environmental and sustainable development challenges at a grassroots level. Emphasizing local ecological and cultural knowledge and direct participation of beneficiaries, GEF SGP projects empower communities to improve their own well-being while generating global environmental benefits. GEF SGP interventions often feature innovative or experimental activities that, once proven effective on the ground, can be readily scaled-up and replicated through larger initiatives, such as a full-size GEF project.

The GEF SGP portfolio actively supports snow leopard and high mountain ecosystem conservation through numerous projects in Central Asia. Past and ongoing projects directly complement the other UNDP-GEF supported projects featured in this book by testing and generating best practices, establishing baseline data or conducting preliminary capacity building, or by providing direct implementation support for project partners, as the following examples describe.

KAZAKHSTAN

In Kazakhstan, GEF SGP helped strengthen Specially Protected Areas (SPA) in East-Kazakhstan Oblas to provide better protection for snow leopards through improved monitoring, anti-poaching activities and community awareness campaigns. The 2013-2015 project set about increasing the state of knowledge about local wildlife populations. Despite occasional signs, such as footprints and scat, SPA staff had no visual proof that snow leopards still occupied the parks. Through a

GEF SGP project implemented by local NGO Snow Leopard Fund, GPS and GIS equipment were procured and 54 camera traps were installed in West-Altay and Markakol Nature Reserves, Katon-Karagai National Park and surrounding buffer zones. In Katon-Karagai the cameras confirmed the signs, capturing five shots of snow leopards to date. Prey species, including Siberian ibex, Musk deer, Red deer, and Roe deer were captured, as well as competing predators: East Siberian brown bear, wolf, fox, wolverine, lynx, sable, and weasel. In



Newly installed camera traps in Kazakhstan's Katon-Karagai National Park captured a variety of snow leopard prey, including the Altai snowcock (*Tetraogallus altaicus*) and Siberian ibex (*Capra sibirica*), as well as the first ever sighting of a Pallas's cat (*Otocolobus manul*) in the area. Photo by Katon-Karagai National Park.



an exciting turn of events, one camera captured the IUCN Red-listed Pallas's Cat (*Otocolobus manul*). Never before spotted in the area, the Pallas's Cat was not on Katon-Karagai's list of animal species before the photo was captured.

TAJIKISTAN

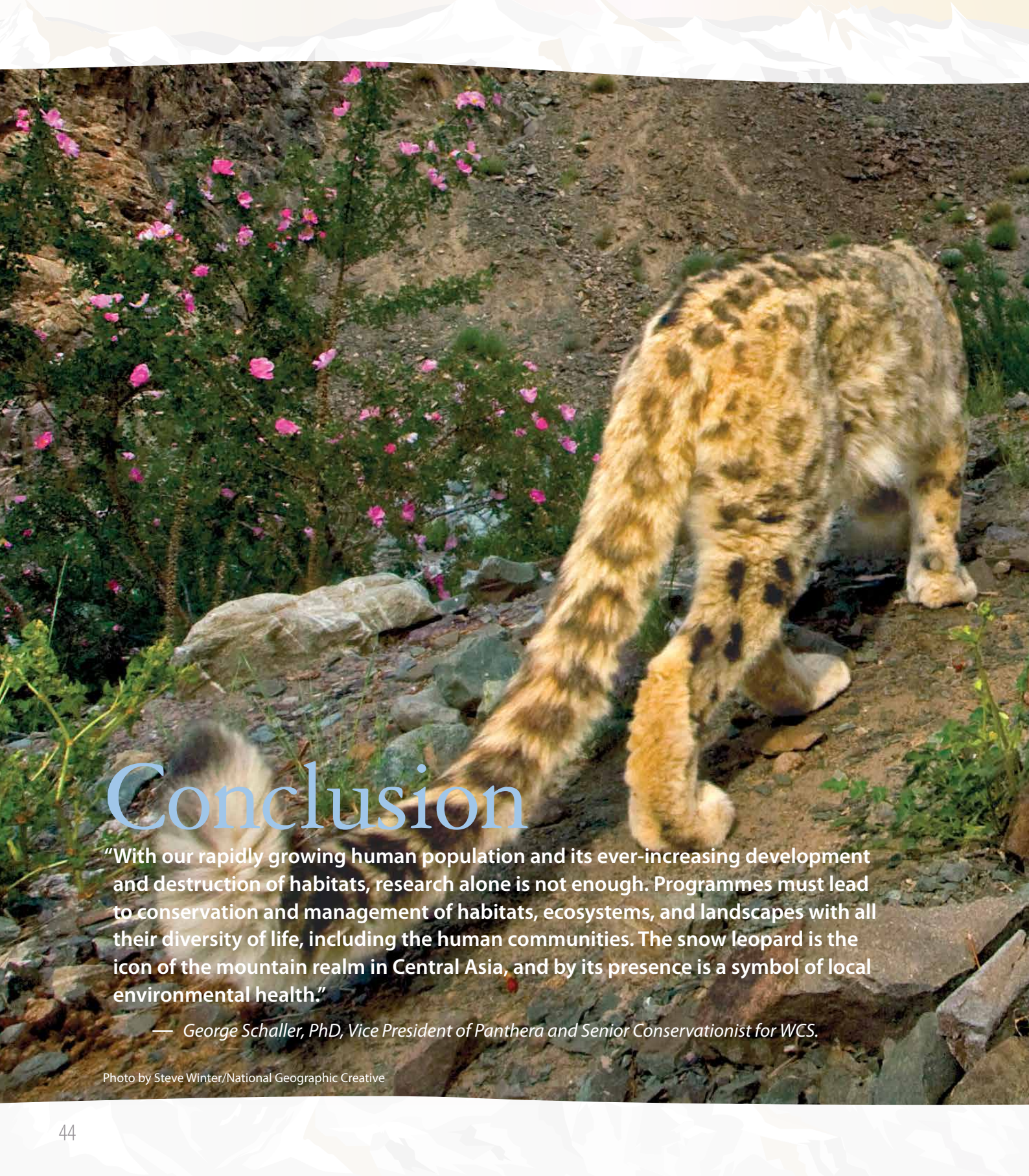
In Tajikistan, a 2012-2013 GEF SGP project combined awareness raising about the importance of snow leopards with incentives for active support of snow leopard conservation by local communities. These efforts focused on reducing human-snow leopard conflict and diversifying livelihood options for both women and men. The project conducted trainings and provided materials to build reinforced shelters (*koshaar*) to protect livestock from depredation, as well as constructed two *yurts* (nomad tents) to promote tourism-related income generation from handicraft

sales. Local community members were also installed as rangers, carrying out anti-poaching and monitoring activities in nearby PAs. These GEF SGP activities served as a pilot project, establishing baseline data in four PAs and laying a foundation of activities that will now be scaled-up and enhanced through the full-size UNDP-GEF project featured in this publication.

KYRGYZSTAN

Following the momentum that was built at the highest levels of government, Kyrgyzstan spearheaded the movement that would become GSLEP. GEF SGP contributed to these early efforts through support for the development and adoption of key GSLEP documents and promoting international cooperation. Now GEF SGP is helping the government mobilise the Kyrgyz people to act on behalf of snow leopard conservation,

in part through intense awareness raising campaigns. A suite of GEF SGP projects from 2014-2016 covering a broad range of complementary activities are taking place throughout the country. A particular focus is the use of various media to educate about snow leopards, including books, websites, board games, posters, videos, museum exhibits, school presentations, press conferences, a photo exhibition, and even a flash mob! Just as important are components that provide the means for people to act. GEF SGP projects established a public information resource center stocked with equipment, literature and manuals on species protection, conducted a youth conference, developed a training module and held workshops to organize and train volunteer rangers for two snow leopard landscapes.

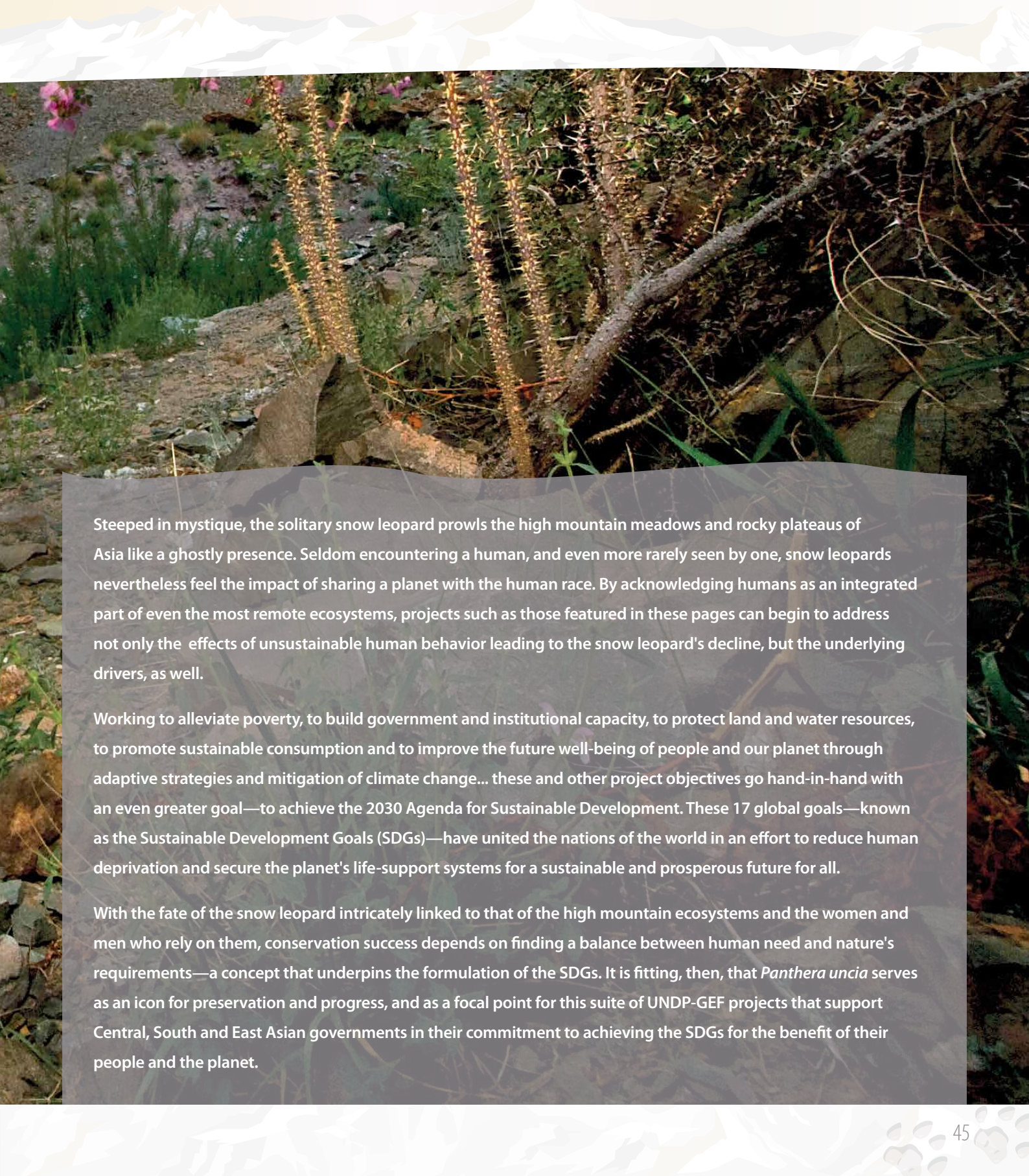
A photograph of a snow leopard walking away from the camera on a rocky, dirt path. To the left of the path is a dense bush with many small, bright pink flowers. The leopard's fur is thick and spotted with dark rosettes. The background is a steep, rocky hillside.

Conclusion

"With our rapidly growing human population and its ever-increasing development and destruction of habitats, research alone is not enough. Programmes must lead to conservation and management of habitats, ecosystems, and landscapes with all their diversity of life, including the human communities. The snow leopard is the icon of the mountain realm in Central Asia, and by its presence is a symbol of local environmental health."

— George Schaller, PhD, Vice President of Panthera and Senior Conservationist for WCS.

Photo by Steve Winter/National Geographic Creative



Steeped in mystique, the solitary snow leopard prowls the high mountain meadows and rocky plateaus of Asia like a ghostly presence. Seldom encountering a human, and even more rarely seen by one, snow leopards nevertheless feel the impact of sharing a planet with the human race. By acknowledging humans as an integrated part of even the most remote ecosystems, projects such as those featured in these pages can begin to address not only the effects of unsustainable human behavior leading to the snow leopard's decline, but the underlying drivers, as well.

Working to alleviate poverty, to build government and institutional capacity, to protect land and water resources, to promote sustainable consumption and to improve the future well-being of people and our planet through adaptive strategies and mitigation of climate change... these and other project objectives go hand-in-hand with an even greater goal—to achieve the 2030 Agenda for Sustainable Development. These 17 global goals—known as the Sustainable Development Goals (SDGs)—have united the nations of the world in an effort to reduce human deprivation and secure the planet's life-support systems for a sustainable and prosperous future for all.

With the fate of the snow leopard intricately linked to that of the high mountain ecosystems and the women and men who rely on them, conservation success depends on finding a balance between human need and nature's requirements—a concept that underpins the formulation of the SDGs. It is fitting, then, that *Panthera uncia* serves as an icon for preservation and progress, and as a focal point for this suite of UNDP-GEF projects that support Central, South and East Asian governments in their commitment to achieving the SDGs for the benefit of their people and the planet.



50
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