



WWF

REPORT

LIVING
HIMALAYAS

2015

SAVING THE SNOW LEOPARD

Himalayan icon on the brink

WWF is one of the world's largest and most experienced independent conservation organisations, with over 5 million supporters and a global network active in more than 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by: conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

Written and designed by Christian Thompson (the green room) with Sami Tornikoski, Phuntsho Choden and Sonam Choden (WWF Living Himalayas Initiative) and Eric Wikramanayake.

The Living Himalayas Initiative, a priority programme of WWF, began in 2009. It has identified the Eastern Himalayas (EH) as a critical eco-region that provides sustenance to a significant percentage of life on this planet.

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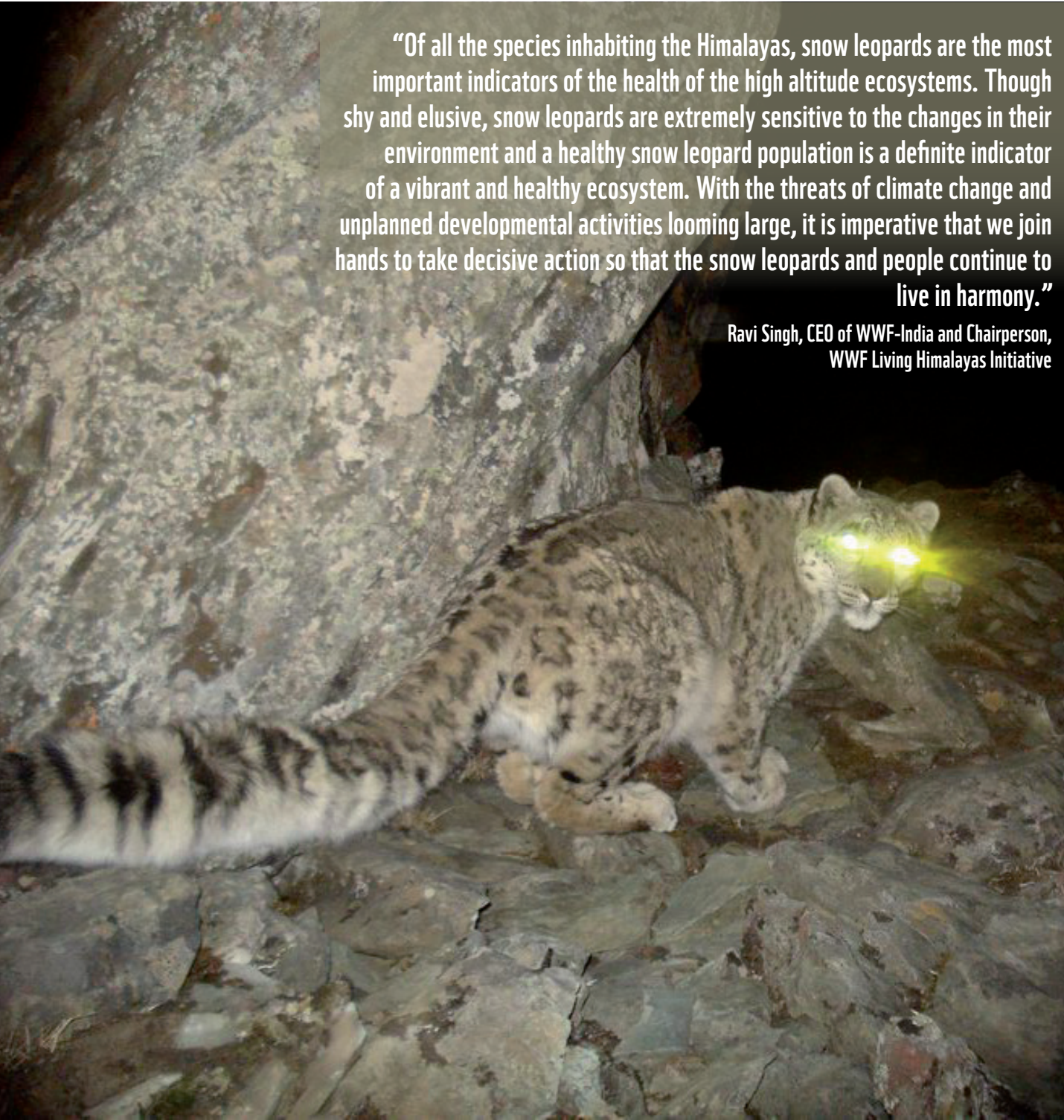
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Front cover
Snow leopard (*Panthera uncia*) © Ben Byrne



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"Of all the species inhabiting the Himalayas, snow leopards are the most important indicators of the health of the high altitude ecosystems. Though shy and elusive, snow leopards are extremely sensitive to the changes in their environment and a healthy snow leopard population is a definite indicator of a vibrant and healthy ecosystem. With the threats of climate change and unplanned developmental activities looming large, it is imperative that we join hands to take decisive action so that the snow leopards and people continue to live in harmony."

Ravi Singh, CEO of WWF-India and Chairperson,
WWF Living Himalayas Initiative

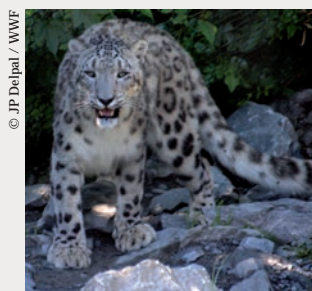
The majestic snow leopard (*Panthera uncia*) photographed using motion-activated camera traps

1. Executive Summary

The snow leopard (*Panthera uncia*), native to Central Asia and the Himalayan mountain range, is one of the world's most elusive cats. Estimates vary significantly but it is thought there might be as few as 4,000 snow leopards remaining in the wild¹.



Location of the Eastern Himalayas in South Asia



© JP Delprat / WWF

The big cat of the high Himalayas continues to be hunted for its beautifully-marked fur

In this wilderness above the tree line, the majestic smoke-colored snow leopard glides silently and is nearly invisible as the top predator. With its gray fur dotted by black spots and rosettes, snow leopards have an uncanny ability to camouflage among rocks and rugged slopes. The cat is what biologists call an “indicator species” of the mountain ecosystem. Hence, its presence is necessary for ecosystem balance and health. But the global population of wild snow leopards is at an all-time low following a 20% decline in population over a 16-year period². This reduction in numbers is due to shrinking habitats, climate change, decrease in prey, retaliatory killing and the increase in hunting and demand for body parts³.

As these threats grow, it becomes clear that this iconic big cat could disappear if immediate actions are not taken. WWF believes that protecting the essential habitat will ensure the survival of the region's threatened snow leopards. Hence, it launched the Living Himalayas Initiative in 2009 - an ambitious regional initiative that aims to work closely with governments and other partners - to ensure that rare species such as the snow leopards are secure in the Eastern Himalayas that stretches across Nepal, Bhutan and northeast India⁴.

The combination of unsustainable land-use practices in the region exacerbated by climate change has negatively affected snow leopard populations in the Eastern Himalayas. According to recent scientific studies, the high altitude region of the Eastern Himalayas is among the most vulnerable to global climate change. This means that the large cats are more vulnerable to extinction⁵ in this region and thus, the urgency to conserve the leopards here. According to WWF, the impact of climate change could result in a loss of up to 30% of the snow leopard habitat in the Himalayas. Bold and transformative actions for the long-term protection of snow leopards are needed.

This year - 2015 - has been declared as the “International Year of the Snow Leopard” by the 12 range countries. To the WWF Living Himalayas Initiative, it means a year full of exciting challenges and opportunities to galvanise political will, resources and action. Therefore, this report highlights why snow leopards of the Eastern Himalayas are a global conservation priority and what the threats are. With proper safeguards and investment in place, including ambitious measures to tackle the global drivers of snow leopard poaching and habitat destruction, WWF believes it is possible to scale up existing conservation measures to:

RESTORE snow leopard populations to habitats where they were once abundant;
RECOVER snow leopard numbers where populations still exist;
RECONNECT crucial snow leopard habitats to ensure snow leopard populations and their prey species persist.

2. Snow leopard: Global status and distribution

Snow leopards have a wide regional distribution from the Himalayas northwards through Central Asia to include 12 countries: Afghanistan, Bhutan, China, India, Kazakhstan, Kyrgyz Republic, Mongolia, Nepal, Pakistan, Russian Federation, Tajikistan and Uzbekistan.

Listed as endangered on the IUCN (International Union for Conservation of Nature) Red List of threatened species, the snow leopard population is estimated at 3,920-6,390.⁶

In addition, the Convention of Migratory Species recognises snow leopard as a species that requires concerted action by all snow leopard range countries (**Box 1; Map 1**) to save it from extinction.

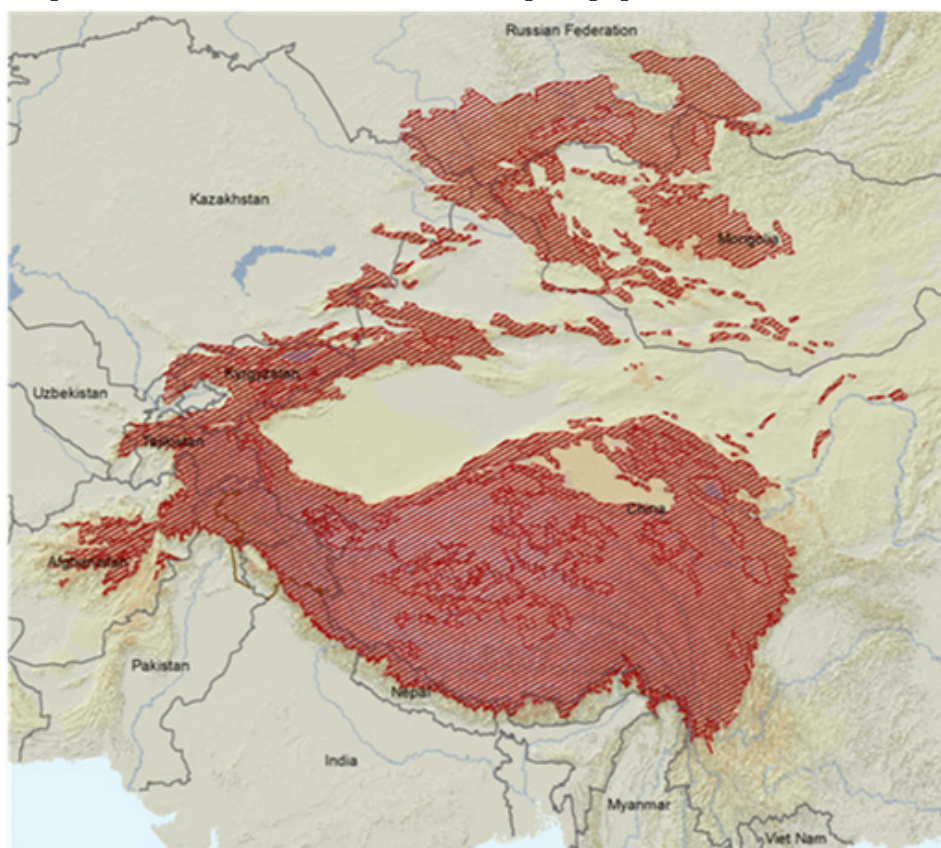
We still know little about the snow leopard due to its elusive nature. It was not until the 1970s that wildlife biologists began to roam the mountains in search of clues about the snow leopard's mysterious existence.⁷ Biologists used indirect evidence - tracks, droppings, and stories from local herders - to deduce details of the cat's life. And in the 1980s, scientists initiated an in-depth study of the prime snow leopard habitat in Nepal's Langu valley using radio telemetry on five snow leopards.⁸ This was a pioneer study for snow leopards globally as it gave the first information on its behavior, biology, movement and breeding season, among other characteristics.

Box 1. At a glance: How many are left?

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 Snow Leopard Survival Strategy (McCarthy et al. 2003)

Map 1. Global distribution of the snow leopard population





DID YOU KNOW?

Scientific name:

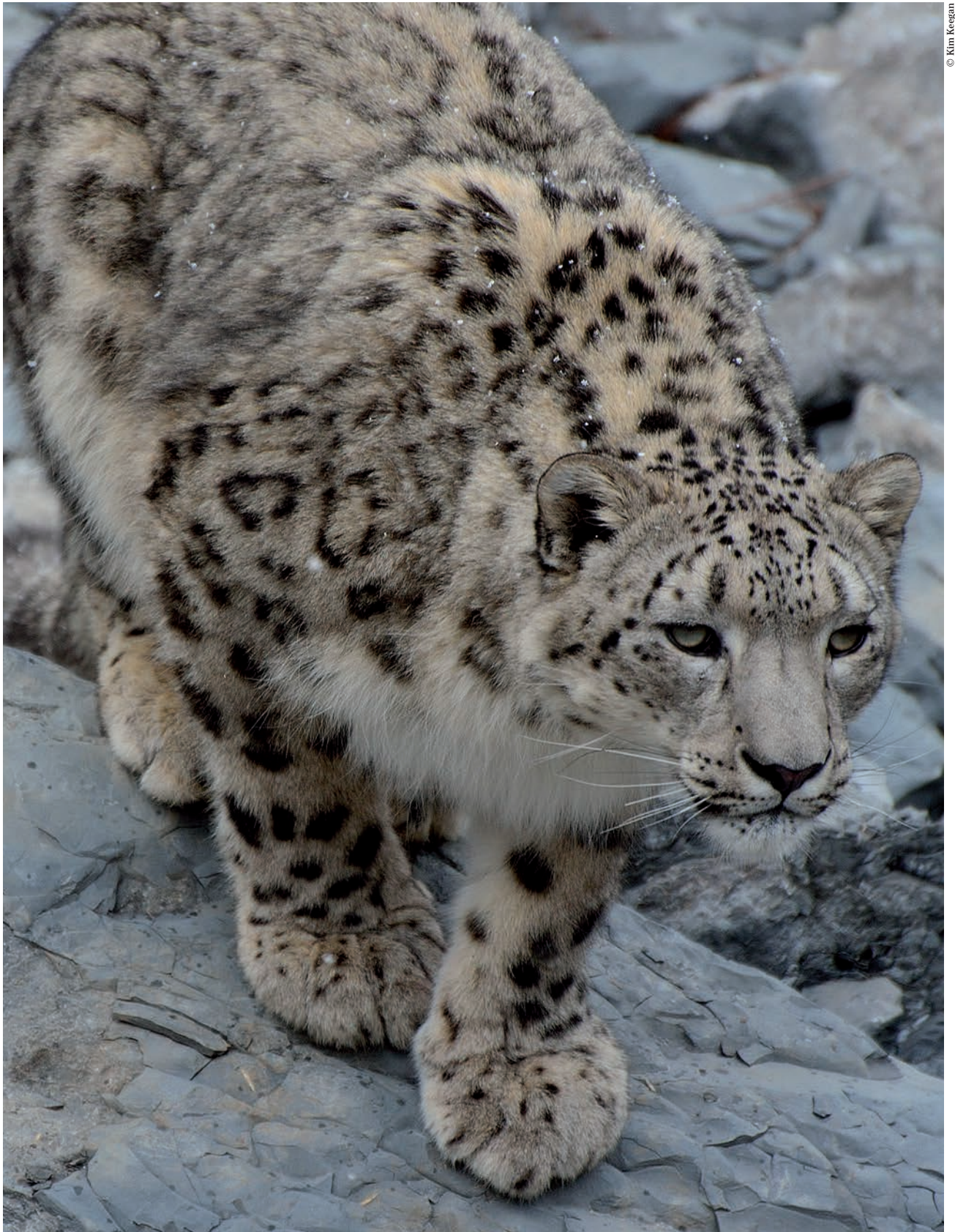
- *Panthera uncia* (Schreber, 1775)

Description:

- The snow leopard is recognisable by its long tail and beautifully-marked, almost-white coat, spotted with large black rosettes.

Facts:

- The snow leopard is a priority species of WWF. WWF treats priority species as one of the most ecologically, economically and culturally important species on our planet. WWF is working to ensure such species can live and thrive in their natural habitats.
- Snow leopards are between 86 – 126 cm long and that is excluding their tail.
- Snow leopard's tails are thought to help them balance, but they also wrap them around themselves to keep warm. Their tails are nearly as long as they are.
- Snow leopards have wide, fur-covered feet that act as natural snowshoes. These help to distribute their weight over soft snow and protect the soles from the freezing cold.
- They can jump as much as 50 feet (15 metres).
- Unlike other big cats - like lions and tigers - snow leopards can't roar.
- Snow leopards first reproduce at around two and a half years old. Usually two or three cubs are born in spring or early summer in a well-concealed den.
- Snow leopard cubs are born blind and don't gain their sight until they're nine days old. They are fully active by two months old and stay with their mother until they're two years old.
- Snow leopards live at high altitudes, usually at elevations of 3,000 to 4,500 metres and they've been seen above 5,500 metres in the Himalayas. Studies have also shown that they've been seen at lower elevations in their northern range limits at altitudes between 1200-2500 meters.
- Snow leopards can kill prey weighing as much as three times their own body weight and must kill a large animal about once every fortnight to survive. Snow leopards typically prey on blue sheep (*Pseudois nayaur*), Argali sheep (*Ovis ammon*), Siberian ibex (*Capra sibirica*), small rodents, marmots (*Marmota sp.*), pikas (*Ochotona sp.*), hares (*Lepus sp.*), Tibetan snowcock (*Tetraogallus tibetanus*) and chukor partridge (*Alectoris chukar*). One blue sheep will provide a snow leopard with food for one week.
- Snow leopards are solitary animals. It is rare to see two adult snow leopards together outside of mating season. Males and females stay together for a short period and males do not rear the cubs.
- China contains as much as 60% of the snow leopard's habitat.



© Kim Keegan

3. Eastern Himalayan Icon

“The snow leopard is an iconic species and valuable indicator of environmental health – their declining number is a sign that the places they live are also threatened. India, Nepal and Bhutan can demonstrate how to create a regional conservation framework that helps protect the future of this iconic species and the Eastern Himalayas, which is one of the most vulnerable spaces among the existing snow leopard habitats. The time to act is now.”

- Sami Tornikoski, Leader
WWF Living Himalayas Initiative

The Eastern Himalayas extend eastwards from the Kali Gandaki River in central Nepal across Sikkim, Bhutan, and Arunachal Pradesh to the northern edges of Myanmar. The northern reaches of this sweeping arc include the Trans-Himalayan regions of the Tibetan Autonomous Region.

Along its length, the Eastern Himalayas includes several of the highest mountain peaks on Earth; Sagarmatha (Everest), Kanchenjunga, Annapurna, Lantang, Makalu, Manaslu, and Jomolhari that tower above 7,000m.

The Eastern Himalayas is also widely recognized as a global priority for biodiversity conservation. A majestic jewel in this treasure trove of biodiversity is the mystical snow leopard; the largest predator hunting large prey animals along the highest peaks on Earth.

3. 1 Why are snow leopards of the Eastern Himalayas a global conservation priority?

Snow leopards have a wide regional distribution, extending from the Himalayas northwards through Central Asia to include 12 countries and over 3 million sq km. But the estimated four to six thousand wild snow leopards are distributed as scattered populations throughout the vast range in mountainous and hilly habitat. In parts of China and Russia, snow leopards live in open coniferous forests but they generally avoid large densely forested areas. However, it may occasionally cross small patches of forests or venture immediately below the treeline. Therefore, less than 20% of the range consists of ‘good’ snow leopard habitat.

The mountainous terrain across the range varies from the steep, high mountains of the Himalayas to the shallow, lower rolling hills of the Tibetan Plateau. Within these habitats, snow leopards hunt different prey species and will form different predator guilds with other carnivores from Tibetan wolves to Brown bear. The wild snow leopards are thus ecologically adapted to live, hunt and breed in a variety of different habitat types, terrain features and prey species across the vast range.

In the Eastern Himalayas, snow leopards favor rugged, steep and craggy mountainous habitats in the upper alpine areas and the rolling alpine grasslands. Here, they hunt large prey species such as blue sheep, argali, Himalayan tahr. But it will, at times, kill the smaller marmots and pika.^{9,10} While these species comprise the natural prey, snow leopards also kill domestic livestock.

In the steep craggy habitats, the snow leopards are the only large predator but share the alpine grasslands with Tibetan wolves. Field observations from deep within Wangchuck Centennial National Park in Bhutan suggest that when Tibetan wolves are present, the snow leopards avoid the alpine grasslands.

The adaptation to different ecological condition, its role in the ecological community and the likely genetic differences due to isolation of populations across the range are reasons for considering the snow leopards in the Eastern Himalaya as a distinct conservation priority in a regional or a range-wide strategy. This is how another large Asian predator - the tiger - has been prioritised for conservation based on its ecological role in different habitat types.¹¹

3.2 Threats to snow leopards in the Eastern Himalayas

Herders have used the alpine grasslands of the Himalayas to graze livestock for centuries. However, the sizes of herds of domestic livestock have increased over the years and thus, degrading the sensitive and fragile alpine grasslands. The larger herds of livestock also displace the wild prey species of snow leopards forcing snow leopards to kill domestic livestock for food. This cascading series of events culminate in increasing retaliatory killing of snow leopards by aggrieved herders, even though wolves may also kill some livestock.

Snow leopards are also hunted for their attractive pelt and the bones, which are in great demand in China. The pelts are incorporated into clothing and adornments while the bones are crushed and concocted into traditional medicines.

More recently, another insidious threat to snow leopards has manifested in the Himalayas. The pervasive effects of global climate change are now changing the mountain ecosystems with deleterious impacts on snow leopards, their prey and habitat.

Research indicates that the climate in the Himalayas is trending towards wetter and warmer conditions. Climate models applied to Himalayan ecosystems suggest that the changing climate will drive forests further upslope. As a consequence, snow leopards will become squeezed in a narrowing band of alpine habitat that limits them with unsuitable forest habitat below and physiological limits of oxygen deprivation from above. Thus, trapping the populations in fragmenting habitat patches along the mountain range.

About 30% of the snow leopard habitat could become lost, with Bhutan and Nepal losing about 55% and 40% of current habitat, respectively.¹²

The small snow leopard populations isolated in habitat fragments will suffer loss of ecological, genetic, demographic and behavioral integrity, and become more susceptible to poaching, disease, starvation due to loss of prey species, and eventually, extinction.

3.3 The Bishkek Declaration: The global conservation strategy for snow leopards

In October 2013, the leaders of the 12 snow leopard range states and snow leopard experts convened a meeting in Bishkek, the Kyrgyz Republic, to develop a long-term global conservation strategy for snow leopards. WWF played a pivotal role in this inter-governmental process together with other conservation partners.

The output was an action plan, the Global Snow Leopard and Ecosystem Protection Program (GSLEP)¹³ that stated a shared goal and strategies to identify and secure at least 20 snow leopard landscapes across the snow leopard range by 2020.¹⁴ The landscapes in this “Secure 20 by 2020” goal are spaces that: a) can host at least 100 breeding age snow leopards; b) can support adequate prey populations; c) have functional connectivity; and d) are conserved with the involvement of local communities.



© Malcolm Williams

The distinctive fur pelt of the snow leopard on display



© Som Ale

The Himalayan Tahr (*Hemitragus jemlahicus*), a large ungulate, is a preferred wild prey of snow leopards.



© WWF-Bhutan/WCP

As one of the primary wild prey of the snow leopard, the abundance of blue sheep indicates a suitable habitat for the species.



© summitpost.org

Snow leopards may also supplement their diet by feeding on other small mammals/birds found in the himayalas such as the snow cock.

4. A Conservation Strategy for Snow leopards in the Eastern Himalayas



Contributing to the on-going process to save the snow leopard and its habitat, the Eastern Himalayas conservation strategy for snow leopards should be based on the ecology, behavior, population biology and genetics of snow leopards adapted to this mountain range.

“The charismatic snow leopard is the only one species among big cats that is equipped to survive the cold and rugged mountains of Himalayas. Yet, their continued survival is increasingly being questioned because of the looming threat of global warming, the impact of which is expected to be more rapid and severe in the habitats they call home.”

**- Rinjan Shrestha Ph.D.,
Conservation Scientist,
Eastern Himalayas Programme,
WWF-US**

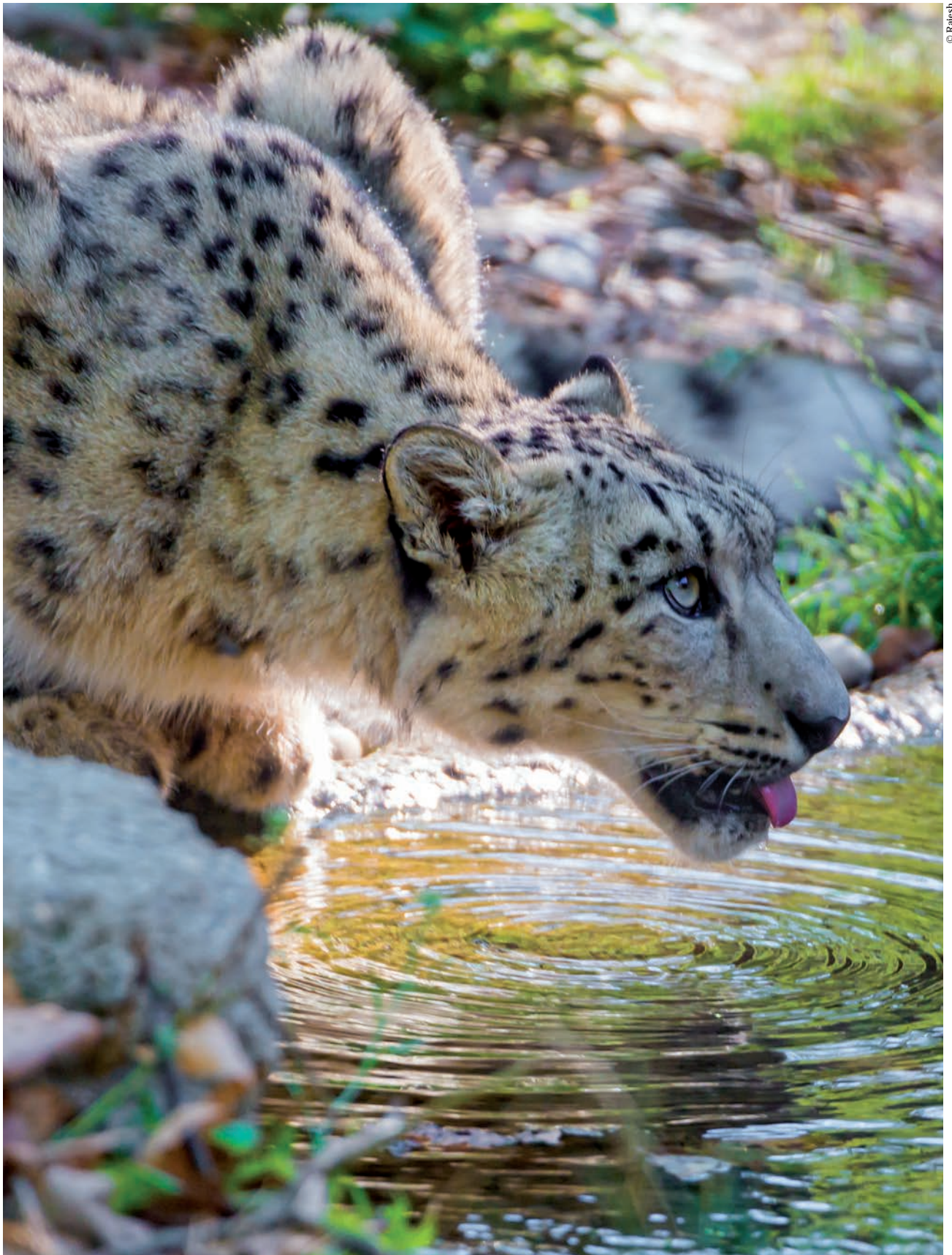
However, scientific knowledge of snow leopard biology in the Eastern Himalayas is scant. Their cryptic nature and the rugged habitat in which they live make studying snow leopards in the Eastern Himalayas extremely difficult. Hence, the available information is biased by logistics of data collection, available information on snow leopard habitat use and ranging behavior.

This is best illustrated by comparing the results of a pioneering radio-telemetry study of snow leopards conducted in Nepal in the late 1980's with a more recent study using improved, modern technology.

The first study in the 1980s indicated that snow leopards in the mountains of Nepal have home ranges of 11-37 sq km.¹⁵ These data were collected by the researcher who spent many months tracking the animals on foot along the mountains.

But the 2013 study using satellite GPS collars provides information on snow leopard movements and habitat using GPS acquired location data that are transmitted via a satellite link. The single snow leopard collared in Kanchenjunga, Nepal is moving around in a home range that exceeds 600 sq km. It crosses into India and returns regularly, and climbs to elevations over 5,800m, which is very close to the Chinese border. More collaring is required to acquire scientifically robust data, but these preliminary results shows that snow leopards move over much larger areas than previously thought.

Several studies conducted across the Eastern Himalayas using fecal DNA are providing information about the genetic diversity of snow leopards. Well-planned structured camera trap studies have now begun to provide more reliable population estimates and dietary analyses are providing information on the food habits of snow leopards. However, these studies are parochial; conducted in isolation with the results analysed at individual protected area-scales. A range-wide analysis will, however, shed more light on genetic variability of snow leopards across the Eastern Himalayas, population connectivity and potential dispersal barriers and habitat use. Such regional-scale collaboration is essential for an Eastern Himalaya-wide conservation strategy using robust scientific data.



Less than 20% of viable snow leopard habitat remains in the Eastern Himalayas. Conservation action is therefore urgent in the region

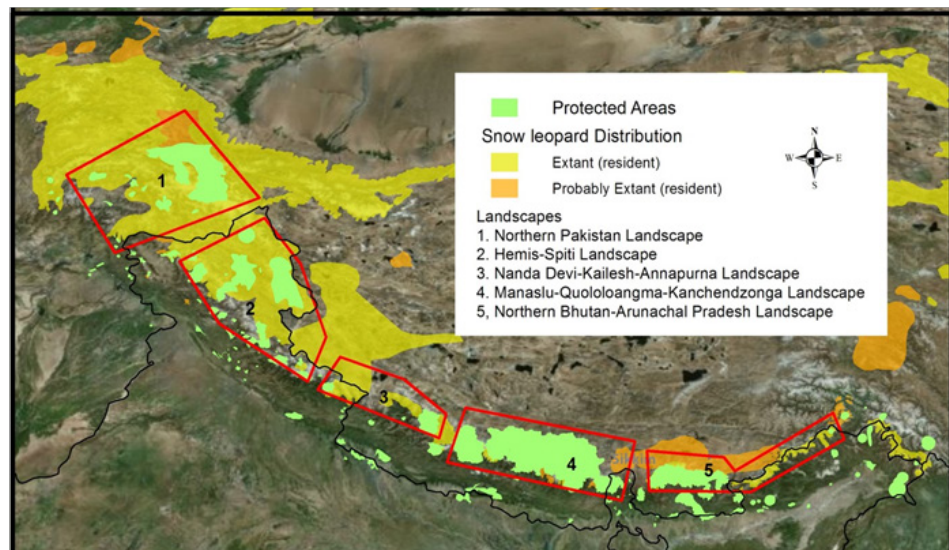


Figure 1. Indicative locations of priority snow leopard conservation landscapes in the Himalaya (shown within red polygons)

In 2013, experts identified five snow leopard conservation landscapes across the Himalayas (**Figure 1**). These landscapes contribute to the Bishkek Secure 20 by 2020 goal and are to support at least 100 adult snow leopards, based on current population estimates. The landscapes are also deemed to have ecological and genetic connectivity for snow leopards to move between protected areas, with potential to conserve and manage the intervening habitat with community stewardship to continue to permit snow leopard movement and dispersal.

Two of these landscapes are within the Eastern Himalayas, and represent the conservation priorities.

1. The Manaslu-Quomoloangma-Kanchendzonga Landscape, from eastern Nepal (Manaslu eastwards) to Khanchendzonga, (Sikkim) with connectivity to Quomoloangma (Tibetan Autonomous Region).
2. The Northern Bhutan-Arunachal Pradesh Landscape, extending westwards along northern Bhutan into northwestern Arunachal Pradesh, with connectivity with the Tibetan Autonomous Region.

Using the global snow leopard conservation plan from Bishkek as a basis, the conservation strategy for the Eastern Himalayan landscapes will consist of the following:

1. *Maintain habitat connectivity within the two landscapes, including trans-boundary connectivity*
 - Maintain north-south habitat connectivity in the Manaslu-Quomoloangma-Kanchendzonga Landscape. Connectivity with the Trans-Himalaya becomes especially important due to possible habitat fragmentation and isolation of populations along the Himalaya, as indicated by climate change projections. The movements of the only satellite GPS collared snow leopard indicate that such trans-boundary movements are realistic.
 - Integrate climate change into landscape conservation spatial plans. Identify climate resilient connectivity, climate vulnerable areas and climate refugia.



© Dr. Rinjan Shrestha

Ranger Leki of Wangchuck Centennial National Park placing a camera trap in the mountains of central Bhutan

2. *Conduct research and monitoring with region-wide collaboration*

- Gather information on ranging patterns, habitat use, and social patterns using satellite GPS collaring studies in both landscapes. This information is essential to develop scientifically robust landscape-scale conservation plans.
- Analyse genetic and population estimate data now being collected at site-scale at regional and landscape scales.

3. *Manage, conserve and restore habitat*

- Address habitat degradation due to intensive grazing by domestic livestock and unsustainable collection of medicinal and aromatic plants. These practices are degrading the ecologically fragile, sensitive alpine meadows, which will eventually cause a collapse of both sources of livelihoods, in addition to decline of snow leopard populations. In some areas of the Himalayas, alpine pastoralists are now giving up practices for other livelihoods, or are downsizing herd sizes. Conservation planners should make use of this opportunity to zone the pastures that are being released from grazing as wildlife areas, and introduce traditional grazing practices, which were more sustainable among the latter pastoralists.
- Regulate the collection of medicinal and aromatic plants to make the practices more sustainable and equitable to bring direct benefits to local communities. Collection of the caterpillar fungus is an especially lucrative livelihood across the Himalaya. But in many places, the collectors come from outside the landscape, including from across borders. Thus, the local communities lose out on livelihood benefits.

4. *Conserve prey species*

- Conserve, restore and monitor natural prey populations. The snow leopard's natural prey species populations are displaced by livestock and herders, causing the snow leopards to kill livestock. Zoning vacant and abandoned grazing areas as wildlife areas and introducing traditional, sustainable livestock grazing practices can restore the ecological co-existence between wild ungulates, domestic livestock, and snow leopards, including from degree of harmony between pastoralists and snow leopards.



© Sharada Prasad

Signs of life: Snow leopard paw prints in the snow, but for how long?

5. *Engage local stakeholders for participatory planning and conservation stewardship*
 - Engage local communities as conservation stewards and citizen scientists, capacitated to monitor snow leopard and prey populations, and tackle poaching. This requires appropriate livelihood incentives and education and awareness programs.
 - Introduce traditional grazing practices and regulate medicinal and aromatic plant collection to make the practices sustainable.
 - Introduce community-based nature tourism focused on wildlife and wilderness areas, with innovative mechanisms to maximise economic revenue to local communities.
 - Engage local communities in the conservation planning process.
6. *Leverage international agreements for regional collaboration and dialogue, including to combat cross-border poaching and illegal trade in wildlife parts*
 - Create forums and leverage or facilitate agreements for regional collaboration to: manage trans-boundary conservation landscapes; address the illegal trade in snow leopard parts and products; and, regulate natural resource collection and export from snow leopard habitats. Bilateral agreements between Nepal and China, and Nepal and India are already in place. Agreements among Bhutan, China, and India are necessary.
 - Include regional discussions on snow leopard conservation in the SAWEN (/SACEP meetings).



This snow leopard was photographed in April 2012 by Bhutan's Wangchuck Centennial National Park using motion-activated camera-trap

On the trail of snow leopards in the Bhutan Himalaya

Rinjan Shrestha Ph.D., Conservation Scientist, Eastern Himalayas Programme, WWF-US

In October 2011, equipped with supplies for about 45 days and teamed with fabulous mates, I embarked on an expedition into the desolate mountains of Bhutan Himalayas that snow leopards call home.



Local people often regard snow leopards as the ghosts of the mountains for their puzzling elusiveness. It is therefore of no wonder that very few people have seen them in the wild.

I was thrilled to work in the newest park in Bhutan – the Wangchuck Centennial National Park (WCNP) – that we have little information on. My team consisted of park ranger Tenzin Wangda; foresters Leki Dorje and Nawang Tashi; and intern Gempo Wangdi. The Tshogpa, the headman of Nasiphel Village, and Tenzin – a horseman with 12 horses who is always ready to fix tents, bags and boots with his magic needles and yak hair threads, also accompanied us. Our study area was located in the north central part of the 4,914 sq. km.

The first day of our journey saw a heavy downpour, which brought me happiness because it often means snow up in the snow leopard country. And fresh snow is what I needed to track these secretive animals. But I was shocked as Tshogpa started to chant prayers to stop the rainfall. Trails can be treacherous up in the mountains during the rain, especially for horses. Considering the caravan of horses – and paying due respect to the local custom – I did not dare to explain the significance of precipitation to our mission.

It was not until the eighth day of our expedition and the ascent of nearly 4,500 m that we found the first sign of snow leopard. It

was a scrape marking that the cat made right at the cliff base along a trail. After a more thorough search, we found three other scrapes clumped together – indicating that the site had been repeatedly used by the cat. Our happiness knew no bounds and high-fives were exchanged, followed by a short but wonderful dance by Tshogpa. We then began to set up the automatic cameras that are triggered by both motion and heat.

The cameras were placed a little further away from the trail to get a wider field of view which would eventually allow us to document communication techniques adopted by these solitary cats, such as scent spray and scrape marking. The access to the trap site was marked by a narrow passage, which enabled me to estimate the height of passing snow leopards – one of a kind opportunity offered by this site. Height can be used as a clue to discern the sex and age of the snow leopards.

In addition, an unexpected bonus of this site is that it was located right at the tree-line elevation. Because the tree-line forms the border between alpine grassland and forests, I expected that we could get pictures of animals from the both habitat types in our camera trap. By the end of our expedition, we had set up a total of 11 camera traps strategically spread out across the study site.

The incident that took place upon my return to the nearest town in Bumthang made my journey all the more special. I stood at the main gate of my hotel holding an impoverished walking stick and wearing heavily soiled clothes and boots. I was sun burnt and had grown a beard and moustache. Then I had to break the silence to explain to the hotel owner who I was: “that crazy biologist” who had been to that hotel a month ago. Then I took off from Thimphu in December 2011 to join my family back in Toronto.

After two months of waiting, results from the camera trap had finally arrived. I shed tears of joy as I viewed the pictures and movie clips of snow leopards engaging in activities that I had previously only read about: scent spraying, scrape marking and prowling.

More important, we can now call the Wangchuck Centennial National Park as the treasure trove of biodiversity within the Eastern Himalayas because our camera traps documented a unique assemblage of wild animals that include snow leopards, Pallas's cats, Asian golden cats, common leopards, Asiatic black bear, Himalayan grey wolves, red foxes, wild dogs, musk deer, blue sheep, Himalayan serow, pika and many species of pheasants and birds of prey. This field work has truly been one of the best experiences that I ever had.



Snow leopard successfully collared in Nepal's Himalayas

WWF-Nepal

Nepal created new strides in snow leopard conservation with the historic collaring of a snow leopard using satellite GPS technology in Kangchenjunga Conservation Area in the Sacred Himalayan Landscape in November 2013.

The snow leopard, an adult male approximately five years of age, weighing 40kg and with a body length of 193cm was captured, fitted with a GPS collar and released back into the wild on 25th November 2013. The GPS collaring enables the movements of the snow leopard to be tracked through data received from the satellite. Researchers will be able to determine their movement patterns, habitat use and preferences, home ranges to identify critical core habitats and corridors between them, including trans-boundary habitat linkages and climate resilient habitats.

The collared snow leopard—now named Ghanjenzunga after a local deity— will be monitored for two years. The collar around his neck will send locations or “fixes” at four-hour intervals. It also has temperature and activity sensors.



The project marks the first ever GPS collaring of snow leopards in the Living Himalayas Initiative (LHI) region.

It also marks the first time that local communities through citizen scientists and Snow Leopard Conservation Committees have been involved. Communities have played a key role in identifying snow leopard hotspots for tracking purposes through ongoing camera trap monitoring, participating in the collaring operations and managing local logistics.

The project was led by the Government of Nepal's Department of National Parks and Wildlife Conservation in collaboration with WWF Nepal, the National Trust for Nature Conservation and the Kangchenjunga Conservation Area Management Council/Snow Leopard Conservation Committee-Ghunsu.

WWF Nepal provided both financial and technical support for the collaring expedition.

5. Action and key progress

To ensure the survival of the snow leopards, WWF with its partners continues to carry out research and strengthen snow leopard habitat protection in the Eastern Himalayas, especially in the face of climate change impacts on their habitat.

Snow leopards and prey species populations are being monitored in Wangchuck Centennial National Park in Bhutan. Camera trapping is used to estimate abundance and density within the central and western regions of the park, and a baseline for population estimates and distributions will be completed by 2015. WWF is also working with the Royal Government of Bhutan and other partners to manage Bhutan's biological conservation complex (B2C2) to address a number of threats including poaching and human-wildlife conflict.

In the Eastern Himalayas, WWF is also working with local communities to monitor and reduce the retaliatory killing of snow leopards through innovative local insurance plans. In Nepal, livestock insurance schemes to mitigate snow leopard conflict have been initiated in several VDCs (village development committees) in Kanchenjunga area. This has proven successful in deterring villages from killing the big cat.

In India, surveys have been conducted to document the occurrence and distribution of snow leopards especially in western Arunachal Pradesh and Sikkim. Assessments of the threats from hunting, retaliatory killings and impacts of livestock grazing practices on both snow leopards and prey species have also been made.

WWF also supports mobile anti-poaching activities as a way to curb the hunting of snow leopards and their prey. Together with TRAFFIC, the wildlife trade monitoring network, WWF works to investigate and eliminate the illegal trade of snow leopard products. Anti-poaching programs have been initiated through park patrolling and through engagement of community-based citizen scientists who are also involved in population monitoring. WWF also focuses on conserving snow leopard habitat and help communities sustainably manage the landscape.



© Dr. Rinjan Shrestha

A typical snow leopard habitat

5.1 WWF's current country-specific interventions

WWF conservation teams from Bhutan, Nepal and India have outlined their current and planned interventions toward snow leopard conservation and therefore, towards the Bishkek 2020 goal to save the snow leopard.

Based on an analysis, it is concluded that the following eight areas of intervention are considered crucial to combatting the key threats facing snow leopards:

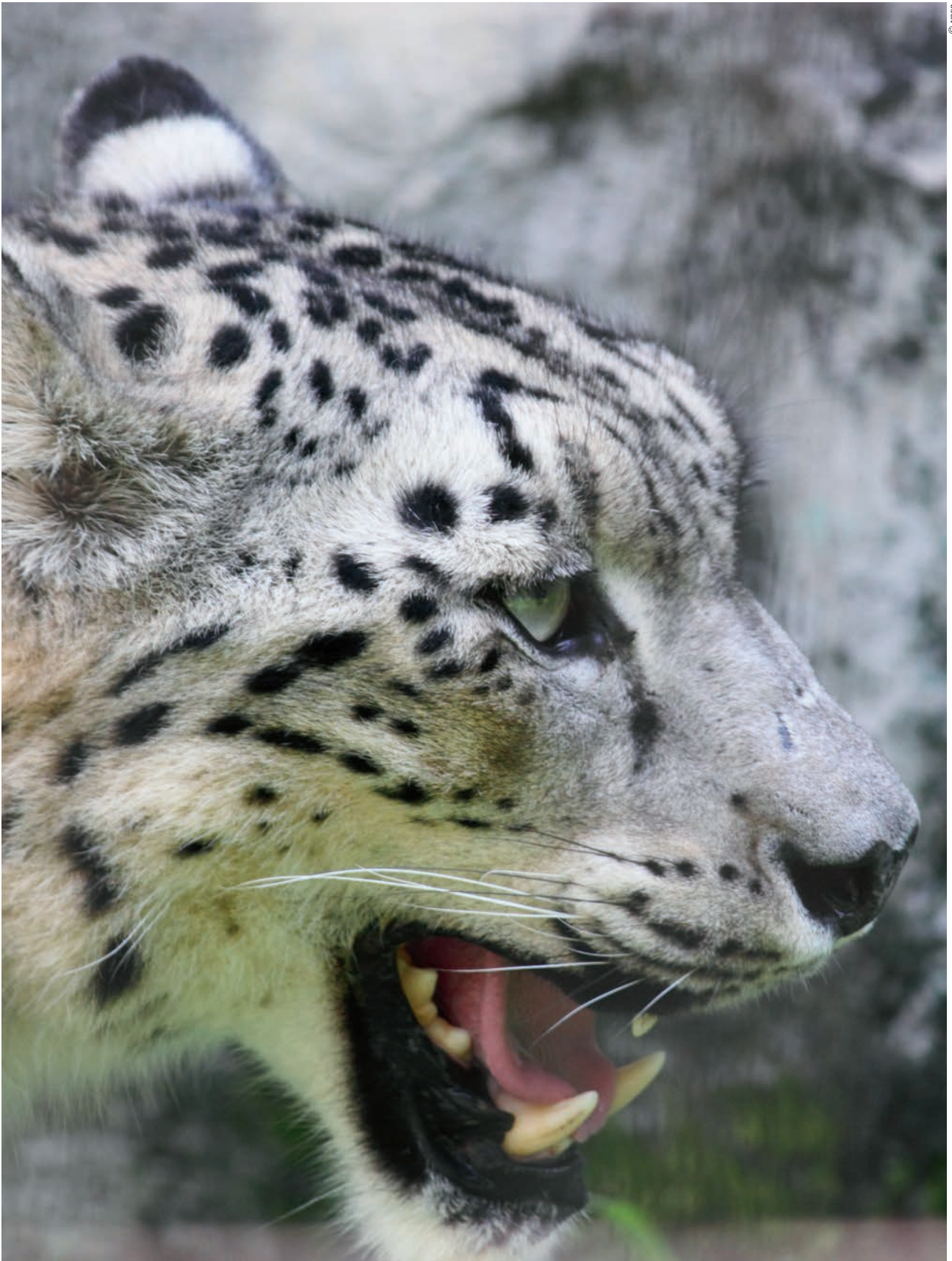
- Reducing Human-Wildlife Conflict,
- Snow leopard trade and poaching,
- Habitat conservation and management (climate-smart management),
- Strengthening Capacity of National & Local Institutions,
- Trans-boundary Management and Enforcement,
- Research and Monitoring,
- Awareness and Communication and
- Engaging industries

It is estimated that more than USD 8 million will be required to deliver fully on these conservation commitments. The funding shortfall remains high with Habitat conservation and Management, Research and Monitoring and Human Wildlife Conflict all requiring essential funding.

5.2 Conservation goals identified

WWF has identified the following Common Goals for 2020:

Goal 2020	
Stretch	Common conservation goals
Secure snow leopard populations	Secure snow leopard populations of at least 100 animals conserved in the priority landscapes with the involvement of local communities by 2020
Reducing Human-Wildlife Conflict	Snow leopard retaliation killing is eliminated in high priority landscapes through active participation of local communities
Snow leopard trade and poaching issues	Strengthen/establish well coordinated multi-layer snow leopard crime control system (local community-law enforcement agencies- cross border trade) at national and international level
Habitat conservation and management (climate-smart management)	At least 20% of the global snow leopard habitat is protected and climate smart management is introduced
Research and monitoring	Introduce community based snow leopard and prey base monitoring in all priority areas using non-invasive methodologies (trap cameras, genetic analysis)



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WWF is focusing on two snow leopard landscapes located in Bhutan, India and Nepal



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Through mutually-rewarding partnerships we can provide a sustainable future for the endangered snow leopard

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Camera trap photo of superbly-camouflaged snow leopard taken in the western range of Wangchuck Centennial National Park, Bhutan

6. Partnerships for living snow leopards

Our most precious resource in snow leopard conservation is partnership

As a trusted organisation in the Asia Pacific region and globally for 50 years, WWF's relationships with communities, local, provincial and national governments, as well as the private sector, are growing.

This is in response to increasing interest to work with WWF to find new, sustainable strategies for species conservation, resource management, development planning and supporting traditional livelihoods and the rights of indigenous people.

Most important, whether it's on the ground or in the boardroom, partnerships provide the opportunity to learn from each other, to work together towards sustainable development and environmentally sound business practices.

The mission continues. Today's economies continue to have a vast impact upon the Himalayas and WWF's role in finding sustainable solutions to the region's pressing environmental issues is now more important than ever. Changing our ecological footprint is a daunting challenge, but through further business, government and community partnerships we can change, for living Himalayas.

WWF is grateful to our past and present partners. Through the WWF Living Himalayas Initiative, we work closely with the governments and the people of Nepal, India and Bhutan. We will also continue to work with the private sector, civil society organisations, academia, finance sector, conservation scientists and ecologists.

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About 30% of snow leopard habitat could be lost in the near future



Snow leopards in numbers

20%

The population of snow leopards has declined 20% over a 16-year period

4,000

As few as 4,000 endangered snow leopards remain in the wild

20%

Less than 20% of viable snow leopard habitat remains in the Eastern Himalayas. Conservation action is therefore urgent in the region

2

WWF is focusing on two snow leopard landscapes located in Bhutan, India and Nepal



Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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