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International Snow Leopard and Ecosystem Forum

Science Symposium and Exposition

Presentation Abstracts

Bishkek, Kyrgyz Republic

August 23-24, 2017

SCIENCE SYMPOSIUM AND EXPO August 23-24

АК ИЛБИРСТИ
ЖАНА АНЫН ЭКОСИСТЕМАЛАРЫН САКТОО БОЮНЧА ЭЛ АРАЛЫК ФОРУМ
КЫРГЫЗ РЕСПУБЛИКАСЫ, БИШКЕК ШААРЫ
2017
24-25-АВГУСТУНДА

МЕЖДУНАРОДНЫЙ ФОРУМ ПО СОХРАНЕНИЮ СНЕЖНОГО БАРСА И ЕГО ЭКОСИСТЕМ
Г. БИШКЕК, КЫРГЫЗСКАЯ РЕСПУБЛИКА
2017
24-25 АВГУСТА

INTERNATIONAL SNOW LEOPARD AND ECOSYSTEM FORUM
BISHKEK, KYRGYZ REPUBLIC
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Published in September 2017 by the WWF Conservation and Adaptation in Asia's High Mountain Landscapes and Communities Project and Snow Leopard Trust in support of the Global Snow Leopard and Ecosystem Protection Program Secretariat.

Preface and Back Cover Photos: © WWF

This publication is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of the respective authors and do not necessarily reflect the views of USAID or the United States Government.

Preface

The International Snow Leopard and Ecosystem Forum was held from August 24-25, 2017 in Bishkek, Kyrgyz Republic as part of the 12-nation Global Snow Leopard and Ecosystem Protection Program (GSLEP). This forum was itself a follow up to the earlier Global Snow Leopard Conservation Forum held from October 22-23, 2013 in Bishkek which launched the GSLEP Program. As a companion event to the 2017 forum, from August 23-24, 2017 the GSLEP Science Symposium and Exposition was held at the Hyatt Regency and Jannat Regency Hotels in Bishkek. This symposium brought together leading researchers and conservationists working on snow leopard-related issues for a broad discussion covering a wide range of topics, including the present and future impacts of climate change on snow leopard range, climate change adaption strategies for communities and ecosystems in snow leopard range areas, current topics in snow leopard field research, community conservation initiatives, poaching and trafficking of snow leopards, and sustainable financing of snow leopard conservation efforts. In addition, a poster exhibition and conservation organization tables were set up next to the conference rooms on both days of the symposium to further highlight advances in snow leopard conservation and research. This publication is a compilation of abstracts from presentations given at the Science Symposium. It is hoped that these abstracts will provide the reader with greater insight into the current status of and recent advances in snow leopard conservation efforts from throughout this endangered cat's range. Funding for this symposium was provided by USAID via the WWF Conservation and Adaptation in Asia's High Mountain Landscapes and Communities Project and the Snow Leopard Trust. Additional funding support was provided by UNDP and GEF. Finally, the symposium would not have been possible without the many researchers and conservationists who participated, who through their efforts are securing a future for snow leopards.



Participants of the GSLEP Science Symposium and Exposition, August 23, 2017, Bishkek, Kyrgyz Republic. Photo: WWF.

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Impacts of Climate Change on High Headwaters Areas of Nepal

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Abstract

Global climate change is strongly visible in Nepal. The recent temperature analysis from 1971 to 2014 done by the Department of Hydrology and Meteorology, Government of Nepal using data from 93 stations showed that the maximum temperature is increasing by 0.56°C per decade which is higher than the global average. According to an ongoing temperature analysis conducted by scientists at NASA's Goddard Institute for Space Studies (GISS), the average global temperature on Earth has increased by about 0.8°C since 1880. Two-thirds of the warming has occurred since 1975, at a rate of roughly 0.15-0.20°C per decade. Again, the increase of maximum temperature in the higher Himalayas is higher (0.86°C per decade) than in the lower parts of Nepal (0.2°C per decade). As a consequence of this, melting of glaciers in the Himalayas has intensified. A study carried out by the International Centre for Integrated Mountain Development (ICIMOD) in 2014 showed that the glacier area decreased by 24% and volume of ice reserve decreased by 29% from 1977 to 2010 in Nepal. Such decrease in glacier area and volume of ice reserve in the Himalayas has forced some mountain communities to migrate due to scarcity of water for their livelihoods. Such negative impacts may also affect the animal kingdom of the Himalayas, like the snow leopard. Furthermore, glacial lakes in the Himalayas are enlarging which poses increasing threats of outburst floods downstream. Recently flash floods due to outburst of small glacial lakes and supra-glacier ponds from glacierized river basins are increasing in Nepal. Monitoring of glacier and glacial lakes and establishment of early warning systems for glacial lake outburst floods and climate induced flash floods are very much needed now in the high headwaters of Nepal as well as in other high mountains of Asia.

Guardians of the Headwaters: Mapping Nature's Benefits and Climate Change in Six Landscapes across the Snow Leopard Range

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Abstract

With more snow and ice stored in the mountains of high Asia than anywhere else on earth outside the north and south poles, the region is often referred to as the “third pole.” With 2016 the warmest year on record, this region is experiencing some of the most immediate impacts of climate change: increasingly variable precipitation patterns leading to shifts in seasonality, more frequent and intense extremes like droughts and heavy storms causing impacts like forest fires, landslides, and severe erosion, and gradual shifts in temperature that are changing the distribution and migration patterns of numerous plant and animal species. This region is also home to the charismatic snow leopard, whose habitat stretches millions of square kilometers from the high mountains of Bhutan through the Tibetan plateau and up through Mongolia, covering the headwaters of all the major rivers in Asia that support more than a third of the world's population.

What exactly is the connection between snow leopards, their habitat, and the numerous benefits it provides to the millions, if not billions, of people living near and downstream on these rivers, and how will it change under climate change? For this analysis, we assessed water provision from snow leopard habitats at the sub-basin scale, and under future climates, analyzing how water flows change throughout the year and may change as temperatures rise, for six landscapes in central and south Asia in Bhutan, Nepal, India, Pakistan, Kyrgyzstan, and Mongolia under the USAID-funded Asia High Mountains Project. Our results show a nuanced picture of water provision at this scale, with flows from snow leopard habitat (higher than 3000 m) being particularly important during specific seasons of the year, particularly dry seasons, and likely to change substantially in the future under different climate regimes. Our analyses also show enormous potential changes in freeze lines, an important indicator of seasonality, with the majority of all landscapes losing at least one month of freezing temperatures, and many areas with 2-3 months lost. This has major implications for development and conservation efforts in these landscapes, with soil and slope instability likely to become a much more significant problem in the future as permafrost melts rapidly, and causing additional knock-on effects on pasturelands that provide critical habitat not only to snow leopard prey, but community livestock.

*Speaker

Potential Distribution of Snow Leopard Habitat Area in the Context of Climate Change: A Modeling Based Approach

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Abstract

The Snow Leopard (*Panthera uncia*) has been assessed as Endangered nationally due to its small population size and being restricted to the high Himalaya with a lack of connectivity between areas of suitable habitat. Furthermore, the Himalayan region is one of the most vulnerable regions to climate change which has warmed three times more than the global average during the last 25 years. Therefore, it's essential to generate relevant scientific information on Snow Leopards and their habitat areas in the context of climate change which is the main objective of this study.

A total of 241 geo-referenced points along with various environmental variables and pseudo absences were used as the input variables. We employed ensemble modelling approach which incorporates various regression and machine learning methods. We produced the potential habitat area maps for the current and future climatic scenarios i.e. RCP 4.5 and RCP 8.5 scenario. The RCP 4.5 scenario is a stabilizing scenario whereas the RCP 8.5 is the worst-case scenario which predicts an overshoot of CO₂ emissions in the future.

We estimated 23,413 km² as the area with high and moderate potential habitat (>60% probability) for Snow Leopards under current climatic conditions. The total potential habitat area loss for the RCP 4.5 scenario by the years 2050 and 2070 was estimated to be 10,437 km² (45%) and 12,670 km² (54%) respectively. Similarly, for the RCP 8.5 scenario loss in the potential habitat area was 12,198 km² (52%) and 14,188 km² (61%) for 2050 and 2070 respectively. The mean annual temperature, temperature of the warmest quarter and elevation were most important variables which could account for the change in potential habitat areas. The results generated by this study could be useful for the conservation planners and policy makers to reduce the risks of future biodiversity losses for safeguarding the habitat of the Snow Leopard.

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The Priority of Snow Leopard Landscape Conservation at Present and in the Future in the Context of Climate Change.

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Abstract

With point data from camera traps and field observations in all range countries and statistical modeling, we refined the global snow leopard habitat map, identified key landscapes that may support the long-term survival of snow leopard populations, and pinpointed main threats based on available data. This work provides the most up-to-date, evidence-driven insights to spatial priorities for snow leopard conservation. We also assessed climate impact on snow leopard habitats from last ice age (21,000 years ago) to year 2070, which indicates that three large patches, Altai, Qilian, and Tian Shan-Pamir-Hindu Kush-Karakoram mountain ranges remained stable habitat from the last ice age to the present and will continue to do so until the late 21st century. These climatically suitable areas, about 35% of the snow leopard's current range, are large enough to support viable populations, and should function as refugia for snow leopards to survive through both cold and warm periods. However, habitat loss leading to habitat fragmentation in the Himalaya and Hengduan Mountains as well as increasing human activities will present conservation challenges for snow leopards and other sympatric species.

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The Adaptation Gap in High Mountains

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Abstract

Mountains provide various ecosystem services for downstream areas such as carbon sequestration, water provision, income through ecotourism, etc. At the same time, they are some of the most vulnerable ecosystems to climate change. Compared to environments at lower elevations, mountains experience more rapid changes in temperature accompanied by changes of cryospheric systems and hydrological regimes and biodiversity. Climate change is likely to affect the survival of large mountain species through habitat shifts, loss, and fragmentation, spatial incongruity of predator-prey habitats, and human responses to climate change. However, adaptation of wildlife to climate change is still a gap and integration of climate change into conservation is not sufficiently applied. Mountain species such as the snow leopard (*Panthera uncia*) adapt by altering their movement patterns and habitat use, which may render existing protected areas ineffective and expose animals to new threats. Fences and roads pose barriers to the movement of flagship species in search of suitable habitat and food, reducing their resilience. In addition, livestock grazing has increased in duration and shifted to higher elevations due to climate change, often leading to human-wildlife conflict as well as poaching and encroachment on the species' habitat. Climate-smart conservation of mountain species should therefore target protected areas and their future utility as climate refugia, contribute to landscape permeability and anticipate how communities' response to climate change will affect local species.

*Speaker

Ecosystem-based Adaptation in the High Mountainous Regions of Central Asia: Coming from Business as Usual to Climate Informed Adaptation

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Abstract

The ecosystems of the high mountain regions of Central Asia are rich in biodiversity and provide essential services, such as the regulation and provision of water for the population of the entire region. However, inappropriate land management of these fragile ecosystems combined with their vulnerability to climate change threats (e.g. melting glaciers, changes in water flow regime, and droughts) decrease their resilience and thus, their ability to provide continued services to people.

A BMUB (Federal Ministry for the Environment, Nature Protection, Building and Nuclear Safety) and IKI (International Climate Initiative) funded and GIZ-led (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH) consortium explores the use of an ecosystem-based adaptation approach to help people adapt to the adverse impacts of climate change. It aims to strengthen the provision of ecosystem services and thereby enhance the livelihoods of the population depending on them. Although the application of potential ecosystem-based measures in Central Asia is not new, typically relevant climate risk information on people and ecosystems is not considered and thus, has a higher risk of introducing maladaptive interventions. This project uses a modified form of the Open Standards for the Practice of Conservation to systematically develop and test an integrated planning framework that used climate risk information to identify key vulnerabilities of people and ecosystem services under several plausible climate change scenarios and developed potential adaptation options. The framework's guidance can contribute to a paradigm shift: moving away from business as usual approaches to climate informed adaptation processes. In addition, it constitutes a cornerstone for building a bridge between international climate finance mechanisms and climate-informed adaptation of local communities.

*Speaker

Climate Adaptation in Snow Leopard Range Areas

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Abstract

Climate change is having severe impacts throughout the snow leopard's high altitude range, much of which forms the headwaters of Asia's most important rivers. These impacts include rising temperatures; melting of glaciers; melting of permafrost that underlies most of snow leopard habitat; more erratic precipitation; more extreme weather events, including drought; disappearance of surface springs and streams; degradation of alpine grasslands; declining water, food, and livelihood security; and increased potential human threats to wildlife. To address these impacts, the WWF Asia High Mountains Project is implementing a series of innovative climate adaptation interventions in snow leopard range areas of six countries. These interventions are addressing climate change impacts on both ecosystems and mountain communities and seek to improve the ability of local residents to adapt to changing climatic conditions. In Bhutan, WWF and UWICE have established a climate-smart village demonstration featuring improvements to water source areas, storage, and delivery systems as insurance against spring drought. In India, WWF has provided instruction on improving the sustainability of the lucrative cordyceps harvest in Sikkim, which has notably resulted in a local ban on cutting of high altitude rhododendrons for firewood and mandatory use of gas stoves in collection areas. In Kyrgyzstan, WWF has installed a demonstration drip irrigation system that shows one method for maximizing water use efficiency for local farmers. In Mongolia, WWF has supported creation of local protected areas that are reducing grazing pressure on snow leopard habitat, helping to increase the resilience of alpine grasslands with benefits for snow leopard prey species. In Nepal, WWF and CARE have demonstrated effective methods for increasing incomes of cardamom growers through use of water efficient sprinkler irrigation systems and have also introduced greenhouse vegetable farming to high altitude mountain villages. In Pakistan, WWF has conducted fodder crop and tree planting campaigns on degraded lands to reduce grazing and woodcutting pressure on natural mountain pastures and forests. Through these simple interventions, the adaptive capacity and future prospects of mountain villages in snow leopard range areas are being improved.

*Speaker

Conservation Genetics of Snow leopards and Connectivity along the Nepalese Himalayas

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Abstract

Variation in Snow Leopard (*Panthera uncia*) occurrence and population size are anticipated in the three snow leopard conservation landscapes identified along the Nepal Himalayas. Genetic studies are needed to provide crucial information on population status, genetic diversity and connectivity for devising an effective and country-wide snow leopard conservation strategy. As part of the Government of Nepal's flagship snow leopard monitoring program, we studied population status, genetic variation, population structure, and gene flow of snow leopards along the Nepal Himalayas by conducting Nepal's first comprehensive and systematic national scat-based, non-invasive genetic survey. Of the 580 scat samples collected opportunistically from protected areas and presumed wildlife corridors, 233 were snow leopard (40%). Using six microsatellite loci, we identified 75 individual snow leopards. We used this dataset to examine population status, population structure, and to evaluate genetic variation, contemporary gene flow and connectivity along the Nepal Himalayas. We estimated 201 snow leopards to be spread across the three conservation landscapes using CAPWIRE. We detected three genetic clusters and found moderate levels of genetic variation ($H_e = 0.70$) and genetic differentiation ($F_{ST} = 0.10$) throughout the landscape. We detected 8 migrants, confirming the potential for dispersal-mediated gene flow across the landscape. Comprehensive protocol for estimating the snow leopard number need to be established based on existing knowledge. Securing snow leopard habitat, including functional wildlife corridors, is essential to enhance gene flow across the landscape and transboundary cooperation to ensure long-term snow leopard survival.

*Speaker

Autonomous Ground and Air Systems for Snow Leopard Protection

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Abstract

The forbidding territory of the Snow Leopard makes it challenging for biologists, conservationists and rangers to study and protect these ghost cats. Kashmir Robotics is a world leader in deploying autonomous, land and air-based systems for the conservation and counter poaching of endangered species. Drawing on recent advances in artificial intelligence, Kashmir Robotics systems have advanced capabilities to act autonomously, with flexibility and consistency, while freeing humans for higher level tasks. From automated camera traps to aerial surveillance, deep learning neural networks give Kashmir Robotics the ability to evolve, improving mission performance and helping define new capabilities to better protect Snow Leopards with the most advanced technology.

*Speaker: Muhammad Ali Nawaz, Snow Leopard Foundation, Islamabad, Pakistan

The SAFE Systems Approach to Human-Wildlife Conflict: A Move away from Symptoms-based Management Towards Integrated HWC Management.

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Abstract

Human-Wildlife Conflict (HWC) management and minimization requires a holistic approach to ensure food security of communities and maintenance of tolerance for wildlife. Current approaches to HWC globally are wholly insufficient to tackle the dynamic, emotive and complex challenge of minimizing and managing HWC. Current approaches suffer from three critical weaknesses: 1) they have an isolated focus on the symptoms of conflict; 2) they lack coherent long term direction; and 3) there is no basis to measure progress and impact.

The SAFE Systems approach, developed by WWF for tiger landscapes, represents a paradigm shift from the current context to a long-term results-oriented approach. The SAFE Approach encompasses a structured process to develop coordinated actions at a site toward a single long-term goal for an area: to make it safe. This is achieved through using experience to make each part of the HWC system – the people and their assets, wildlife and habitats – safe.

The strength of SAFE is that it has a baseline for safety locally; it ensures that all six conflict elements (prevention, mitigation, response, policy, monitoring, and understanding the conflict) are captured. It is holistic in that it encompasses all interactions between people, their land, their livelihoods, decision-makers, commercial and government interests, and wildlife. SAFE can be applied to any conflict context: snow leopards, tigers, elephants or wild pigs; areas with plantations or mines; or protected areas, agricultural zones, or transport corridors. The SAFE approach accounts for the drivers of conflict, e.g. habitat loss, and is comprehensive: it accounts for the relative importance of conflict vs. other local issues (e.g. where many more cattle die from preventable disease than depredation). It is forgiving in that it accommodates human error and the “wildness” of the species involved. The SAFE Approach recognizes that conflict will occur and can never be zero and aligns HWC management decisions with existing development plans and processes that contribute to economic, human, and environmental goals.

*Speaker

What Spatial Capture-Recapture Can Tell You about Snow Leopard Distribution, Abundance and Ecology

David Borchers

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Abstract

Spatial Capture-Recapture (SCR) is a fast-developing suite of methods for estimating abundance and distribution from camera trap data and a variety of other kinds of data. SCR methods applied to camera trap data allow practitioners to answer a range of ecological questions in addition to estimating abundance and distribution. This talk describes very briefly how these data can be used to estimate abundance, to estimate the relationship between habitat variables and density, to construct density surface models, to estimate animal movement ranges and to estimate habitat use and habitat connectivity.

*Speaker

The Need for Long-Term Studies in Snow Leopard Conservation

Kulbushansingh Suryawanshi

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Abstract

The snow leopard (*Panthera uncia*) is an endangered species occurring across the high mountains of Central Asia. The snow leopard and its primary wild prey species, such as the blue sheep (*Pseudois nayaur*), ibex (*Capra sibirica*) and argali (*Ovis ammon*), are relatively long lived species. Most of the current knowledge about these species comes from captive conditions or snap shot surveys. Considerable gaps exist in our understanding of the life history of these species. Recent studies have shown some remarkable insight into our understanding of these species. Johansson et al. (2016) have demonstrated from a long-term radio collaring project in Mongolia with over 23 satellite collared snow leopards that land-sharing, as opposed to protected area based land sparing, is necessary for the conservation of the snow leopard. Long-term studies of the population demography of the snow leopard in the Gobi Desert of Mongolia has shown that even when the population trends of the snow leopard are steady, the life history parameters such as survival, immigration, emigration and mortality can have vigorous underlying dynamics. Our own studies of the long-term population dynamics of the snow leopard in the Spiti Valley of India show high variation in the survival of the snow leopard. Recent studies have also shown that the density of wild prey is a critical determinant of the density of the snow leopard (Suryawanshi et al 2017). We present long-term data in the population dynamics of blue sheep at two sites in the Spiti Valley of Himachal Pradesh. Despite a stable density of the primary predator (snow leopard), blue sheep populations showed a cyclic trend in its density at the two sites of Kibber and Tabo which are 400 km² and 350 km² in size, respectively. We demonstrate that such cyclic patterns in blue sheep population density is caused by density dependent recruitment in the species. Here, I suggest that deeper insights into the ecology of the snow leopard and its prey species is possible only because of the long-term sustained research. The insights developed by these long-term studies are crucial for guiding snow leopard conservation policy in the future.

*Speaker

The Snow Leopard as an Icon for Sustainable Development

Midori Paxton

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Abstract

UNDP has been a proud partner of the GSLEP Program since its inception, and has recently developed ten projects in nine countries covering snow leopard landscapes with funding from the Global Environment Facility (GEF) and other sources. 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. Therefore, articulation of and ensuring the linkage between snow leopard conservation and sustainable development is possibly the only way to save the wild snow leopard population and its critical habitats. UNDP-supported projects therefore take a comprehensive approach to addressing snow leopard and habitat conservation and local sustainable development simultaneously. Furthermore, in light of the fact that high mountain areas where snow leopards occur are particularly vulnerable to climate change impacts, integration of climate change adaptation into project design is critical. In Bhutan, a government-led project is starting which aims to operationalize biological corridors in snow leopard and tiger landscapes while at the same time increasing community capacity to improve local livelihoods through climate resilient and sustainable agricultural development. In the Wakhan Valley in Afghanistan, a UNDP-supported GEF financed government project is being implemented by funding the Wildlife Conservation Society's (WCS) work to enhance the local knowledge base for snow leopard conservation while working closely with communities to improve their livelihoods. UNDP has also supported a recent economic study in Chon-Kemin National Park in the Kyrgyz Republic that quantifies the economic value of snow leopard habitat there, which could increase political support and financing for protected area management and conservation actions. With the fate of the snow leopard intricately linked to those of its high mountain ecosystems and the people who rely on them, conservation success depends on finding a sound balance between human needs and nature's requirements.

*Speaker

Community-based Actions for the Snow Leopard and its Ecosystems

Yoko Watanabe

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¹UNDP, New York, NY, USA

Abstract

The Global Environment Facility (GEF) Small Grants Program (SGP), implemented by UNDP, has actively engaged with the snow leopard range countries and partners to implement community-based actions for conservation of the snow leopard and its ecosystems and has contributed to the implementation of the Global Snow Leopard and Ecosystem Program (GSLEP).

SGP is a Corporate Program of the GEF that directly supports local civil society and community based organizations (CSOs and CBOs) in addressing global environmental issues. SGP is currently active in 125 countries. Over the past 25 years of operation, SGP has supported more than 20,000 projects with a total of over \$550 million in grant funding to CSOs and CBOs across the globe. SGP's strategy is in line with GEF focal areas and program strategies. Biodiversity conservation and sustainable use is the largest portfolio and key agenda of the SGP.

SGP has provided grants to over 20 local civil society and community based organizations in 11 out of 12 range countries for snow leopard conservation. These projects were focused on working with communities in key snow leopard landscapes on protected area management (including Indigenous Peoples and Community Conserved Areas and Territories - ICCA), rangeland management, anti-poaching activities, communication and education activities, and others.

The presentation will focus on SGP's key approaches and results over the past years on snow leopard conservation, including sharing successful cases from Bhutan, Kyrgyzstan, and elsewhere.

*Speaker

Catalyzing Knowledge into Conservation Action: The Save Our Species Initiative

Boris Erg

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¹IUCN, Belgrade, Serbia

Abstract

Created in 2010, SOS – Save Our Species – is a joint initiative of IUCN, the Global Environment Facility (GEF), and the World Bank and is supported by other donors. Its objective is to ensure the long-term survival of threatened species and their habitats. SOS selects the best front-line conservation projects for funding, ensures they achieve their stated objectives and communicates about the successes of a species conservation approach to sustainable development. SOS supports direct action on species conservation priorities informed by the IUCN Red List of Threatened Species,TM Species Survival Commission (SSC) experts, Species Profiles and Action Plans. In 5 years, SOS has helped protect 250 species, including the snow leopard, thanks to 109 projects in 52 countries.

The Integrated Tiger Habitat Conservation Programme (ITHCP) is a strategic funding mechanism which aims to save tigers in the wild, their habitats and to support human populations in key locations throughout Asia. It is supported by the German Government and the German Development Bank (KfW) and was launched in late 2014. The programme contributes to the international goal set up during the 2010 St- Petersburg Tiger Summit to double wild tiger populations by 2022 (up to 6000 tigers), starting from a baseline global population of 3200, which was the IUCN Red List population estimate at that time.

The SOS – Save Our Species and Tiger Programme shows how IUCN uses its convening power and trusted knowledge to build partnerships and mobilize resources for streamlined conservation action. To date, these programmes have raised USD 56 million, supporting more than 200 Civil Society Organizations and government agencies in 67 countries. Is there a potential for building on these two programmes in supporting the conservation of snow leopard in Central Asia?

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Valuation of Ecosystem Services from Tiger and Snow Leopard Landscapes: A Manual on Economic Valuation Approaches for Practitioners

Madhu Verma

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¹Indian Institute of Forest Management, Bhopal, India

Abstract

The guidance manual on valuation of ecosystem services for tiger and snow leopard landscapes is designed to provide practical guidance to field level practitioners of tiger and snow leopard range countries on the valuation ecosystem services to enable them in arriving at a fair ecosystem service value estimate. It intends to explain what ecosystem services are, why they should be valued and how to present these values in a simplistic yet scientific manner for the understanding of a larger audience. It is expected that this improved understanding would make individuals realize and appreciate the marvels of nature, thus motivating them to make efforts for its conservation. This manual aims to assist the field practitioners to achieve this desired result on site through getting a snapshot of the benefits derived from nature. The results are to be determined for a specific period of time and values across different time frames and should not be merged together. The end objective of the manual is to aid and assist policy makers through calculation of ecosystem services value, such that they are empowered to take informed decisions for the concerned ecosystem.

*Speaker

Valuation of Ecosystem Services in Snow Leopard Landscapes of Asia

Ranjini Muarli

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⁵Snow Leopard Foundation, Bishkek, Kyrgyzstan

Abstract

Snow leopards and people have shared Asia's mountain landscapes for millennia. Pastoralism is the predominant land use in Asia's high mountains, and across the range, agro-pastoral and pastoral communities inhabit and use snow leopard landscapes. They rely on ecosystem services – the benefits that humans derive from nature – which in turn depend on well-functioning ecosystems.

The threats that snow leopards face to their survival, such as habitat degradation due to increasing human populations, mining and large-scale infrastructure projects, also impact the well-being of people living in these landscapes. However, to date, there have been no studies in snow leopard landscapes that have attempted to quantify peoples' dependence on ecosystem services, or understand the impacts that alternate land-use decisions, such as mining or infrastructure, can have on the ecosystem services and on the local people who are dependent on them.

We assessed the economic value of provisioning ecosystem services – the material goods from ecosystems – used by local people in five study sites from four GSLEP landscapes: Spiti Valley and Ladakh in India's Hemis-Spiti Landscape, the Gurez Valley in the Himalayan Landscape of Pakistan, the Tost-Tosonbumba Nature Reserve in the South Gobi Landscape of Mongolia, and the Sarychat-Ertash region in the Central Tien Shan Landscape of Kyrgyzstan.

We found the estimated economic value of provisioning ecosystem services used by households in snow leopard landscapes to be surprisingly high, ranging from 1.8 times to nearly 40 times the local annual household incomes. This economic support that nature provides people is critical for humanity but remains hidden and unaccounted for. We suggest that land use change decisions, especially those that are damaging for nature and biodiversity, must start accounting for the value of ecosystem services in their cost-benefit analyses.

*Speaker

A Framework for Community-Based Conservation

Charudutt Mishra

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Abstract

It is widely recognized that long-term solutions to conservation of snow leopards and high mountain biodiversity lie in facilitating peaceful coexistence between people and wildlife, rather than promoting their separation. Community-based conservation efforts aim to assist local people in maintaining or strengthening their conservation-friendly practices, changing their conservation-unfriendly practices or internal threats, and collaboratively addressing external threats to biodiversity. They also try to promote the ownership and accountability of biodiversity and natural resources among local communities.

However, community-based conservation efforts have remained limited in their effectiveness and scale due to a lack of adequate capacity and tools. There has not been sufficient collaboration amongst natural and social scientists, and comprehensive frameworks and training programs to carry out community-based conservation have largely remained unavailable.

The PARTNERS Principles are a set of guidelines for conservation practitioners, distilled from three decades of experience in community-based conservation of snow leopards in five range countries. A comprehensive training program in community-based conservation has been developed using these guidelines by a team of conservation practitioners and natural and social scientists. The training program has been piloted successfully with 80 conservation practitioners from China, India, Kyrgyzstan, Mongolia and Pakistan. It has been improved based on trainee-feedback, which included requests for developing a refresher course for returning trainees. These training programs will be used to fulfill one of the important policy recommendations of the International Snow Leopard Conservation Forum 2017: training at least 500 leaders and field staff from protected areas, NGOs, and local communities on community-based conservation.

*Speaker

From Mining to Protection: Tost-Tosonbumba Nature Reserve, Mongolia

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¹Snow Leopard Trust, Seattle, WA, USA

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Abstract

Our rapidly developing world is today challenging the survival of many species, including snow leopards. One of the emerging threats is mining and dealing with this requires a new set of skills and effort for conservationists working for species protection.

Since the SLT/SLCF started the Long Term Ecological Study in 2008, we have experienced mining development as an emerging threat in the Tost-Tosonbumba Mountain area of Mongolia. By 2010, our study had yielded information that the area has one of the densest populations of snow leopards in the world (22-24 cats in a 1500 km² area). While at the same time, it was discovered that an entire snow leopard habitat in the area was leased to mining interests.

The mission to get Tost-Tosonbumba Mountain protected was a challenging 6-year journey. Creating protected areas, especially with rich natural resources available, is a daunting task while the country is struggling economically. By law, we had to follow a step by step process, which includes the soum (county level), provincial, central governments and finally, the Mongolian Parliament. At every level there was a clash with mining interests, requiring us to campaign and lobby better to influence decision making. A number of nationwide campaigns, media awareness raising events organized with the involvement of local people, and pro-conservation media, got on board to help influence decision makers. We experienced many setbacks.

Finally, after 6 years of concerted struggle, on April 14, 2016, the Mongolian Parliament approved Tost-Tosonbumba Mountain as a Nature Reserve dedicated to snow leopards. This is the first park dedicated to snow leopards in the world and a wonderful achievement. On March 17, 2017, the official boundaries were identified for the 743,058 hectares of habitat and recognized by the Mongolian Cabinet to finalize the creation of this new and important nature reserve.

Tost-Tosonbumba Nature Reserve connects 2 national parks and lies in the South Gobi GSLEP Priority Landscape. Within the GSLEP landscape management planning process, the nature reserve's management planning and its system are being developed with strong involvement of local communities and stakeholders. We look forward to having the nature reserve managed collaboratively with local communities.

*Speaker

A School Student-driven Trap Collection Campaign in Snow Leopard Habitat of Western Mongolia

Chimeddorj Buyanaa

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¹WWF, Ulaanbaatar, Mongolia

Abstract

Mongolia is home to an estimated 20 percent of the total global snow leopard population. According to TRAFFIC's 2016 report "An Ounce of Prevention: Snow Leopard Crime Revisited," Mongolia had the second highest annual snow leopard poaching rate of all 12 range nations in recent years, with 48 percent of snow leopards killed in Mongolia reported to be retaliatory killings by livestock owners. WWF Mongolia's snow leopard conservation work began in 2001 with a special focus on nine key priority areas in the Altai Mountains of Western Mongolia that include mountainous transboundary landscapes between Mongolia, Russia and China. Due to improved law enforcement and long-term public awareness efforts, people's attitudes and behavior towards snow leopards have changed and poaching of snow leopards in Mongolia has declined in recent years. However, in 2013 camera traps placed on Jargalant Khairkhan Mountain captured images of a snow leopard walking with a steel jaw trap on its leg and two other maimed snow leopards that had lost feet to jaw traps. In order to halt the indiscriminate trapping of snow leopards and other wildlife, local school children in Khovd Province initiated an anti-trap campaign titled "A Safe Mountain for Wildlife" with support from WWF Mongolia. In total, 234 jaw traps were collected by the school children through an innovative exchange program in which herders traded jaw traps for useful household utensils. An additional 428 traps were later confiscated from local residents by law enforcement officers. Each of these traps would have otherwise killed an estimated 10 wild animals per year. The collected traps were then dismantled and the metal used to create a statue of a mother snow leopard in a trap and her cub that was placed in Khovd City to promote protection of the snow leopard. After the success of this anti-trap campaign, Khovd Province became the first Mongolian province to ban the use of jaw traps and snares for hunting. The Mongolian Minister of the Environment then issued a directive to provincial governors and protected area administrations to initiate a campaign to ban and confiscate all jaw traps and organize anti-trapping awareness-raising programs in local communities.

¹Speaker

Empowering Local Communities through Snow Leopard Conservation: Stories from Tajikistan and Kyrgyzstan

Tanya Rosen

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Abstract

Snow leopard conservation hinges on the enduring participation and support of local communities. Since 2008 Panthera has worked in Tajikistan and Kyrgyzstan on building a network of community-based conservancies. Through the promise of income from sustainably regulated trophy hunting and eco-tourism, Panthera has helped support the development of a total of nine community-based conservancies in the two countries in areas that had experienced a decrease in snow leopards and dramatic declines of mountain ungulates, particularly argali and ibex, which are key snow leopard prey species.

The approach has yielded increases in ibex, argali and snow leopard numbers across all sites. Intensive anti-poaching activities, together with efforts to reduce conflict between herders and snow leopards via predator-proofing of corrals, have seen poaching contained and retaliatory killings of snow leopards eliminated.

Income from trophy hunting has supported several development projects benefiting the communities the conservancies are embedded in. These communities now feel empowered, respected and finally recognized as key in the conservation of snow leopards and their prey.

All of our programs, in one way or another, rely on local people as invaluable resources. For example, our wildlife detection dog program includes outreach to border communities and their active participation in our illegal wildlife trade informant networks.

*Speaker

Ecological Theatre: A New Approach in Ecological Education in Kyrgyzstan.

Farida Balbakova

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²WWF Russia Central Asia Programme-Kyrgyzstan Implementing Partner

Abstract

Protection of the snow leopard and its habitat is understood to require: 1) direct protection of the species by prevention of poaching, 2) establishment of special protected areas, 3) implementation of measures to support population growth of snow leopard prey species, and 4) involvement of local communities in alternative forms of economic development. As we need to know what we are protecting and whether our measures are effective, species monitoring is very important, especially using methods which do not disturb animals.

All the above activities are being implemented by WWF projects in Eastern Kyrgyzstan, for example with funding from USAID and the WWF Network. Ecological education has also proved to be of key importance for raising the conservation awareness of local people of all generations, renewing traditional respectful attitudes toward nature and its components and ensuring long-term continuity and effectiveness of species and ecosystems protection activities.

There are numerous traditional approaches to ecological education, such as trainings, workshops, development and distribution of informational materials, etc. Celebration of conservation days is not new, but the way they are now organized in the Central Tian Shan project area is very innovative. Practically all members of local communities, from children to elders as well as wide range of guests representing various stakeholder groups, participate in various conservation day activities and competitions. International Snow leopard Day, Earth Day, International Mountain Day, International Day for Biological Diversity, World Water Day, and International Day of Forests, are all celebrated regularly in all project region villages as is a local ecological festival named “The Land of the Snow Leopard Day.”

An innovative component of these ecological education activities is ecological theatre, created by Farida Balbakova, who wrote and published the first set of ecological drama scenarios and organized the first ecological theatre performances in Kyrgyzstan. Initially only children from children’s Friends of WWF Eco-clubs participated in these performances. Later, people of all ages started to take part and locals wrote their own drama scenarios leading to publication of another set of plays that are now being performed in other regions of Kyrgyzstan.

*Speaker

The Role of Indigenous Cultural Practitioners (ICPs) in Conservation of Snow Leopards

Norbu Lama

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¹Land of the Snow Leopard Network, Buryat Republic, Russia

Abstract

Conservation of snow leopards is directly related to revival of traditional spiritual beliefs and practices. Traditions, ceremonies, and customs help us sustain the sacredness of our land. Our cultural landscapes must be alive and active.

- Norbu Lama

The Land of the Snow Leopard Network (LOSL) Network delivered a Statement to the 2013 GSLEP Forum expressing our readiness to collaborate in the development and implementation of the GSLEP to meet its goals using our traditional knowledge (www.globalsnowleopard.org/blog/2015/08/02/indigenous-cultural-practitioners-statement-to-global-snow-leopard-conservation-forum/)

The Snow Leopard is a totem animal (community protector and unifier of humanity) for many communities involved in the LOSL network. ICPs (those who receive their information from the Ancestors) are powerful voices for conservation. We and our traditional communities are perfectly positioned to protect the snow leopard, its prey and habitat. Buddhist influence extends over some 80% of snow leopard range (Li et al. 2013). Traditional Islam, Tengrianity, and Shamanism are also powerful forces throughout Central Asia for protection of the natural world.

There are thousands of Sacred Sites whose guardians could be engaged, significantly extending protection of snow leopards outside protected areas. This presentation will offer examples of ways in which ICPs can contribute in a meaningful way to the GSLEP. Some Sacred Sites can become conservation education centers, as they attract thousands of tourists. Tools like our LOSL App (developed under the leadership of Snow Leopard Conservancy) enable ICPs and community members to record data of importance to themselves as well as to the GSLEP. We consider ancient legends and stories to be a form of data; one such real-life story told across Central Asia addresses the consequences of poaching. This story serves to strengthen cultural elements of conservation education.

Data provided by the LOSL Network contributes to GSLEP efforts in Kyrgyzstan, Mongolia, Russia, and Tajikistan, thus creating pathways for indigenous participation in planning for snow leopard conservation.

*Speaker

Snow Leopard Conservation and Research in Key Landscapes of China

Shi Kun

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Abstract

We have been working at eight main snow leopard study sites over the last 10 years: 1) Gansu Yanchiwan National Nature Reserve in Gansu Province, 2) Gansu Qilian Shan National Nature Reserve in Gansu Province, (3) Qinghai Qilian Shan Provincial Nature Reserve in Qinghai Province, (4) Sanjiangyuan National Nature Reserve in Qinghai Province, (5) Gongga Shan National Nature Reserve in Sichuan Province, (6) Boertala area in Xinjiang Uygur Autonomous Region, (7) Taxkorgan Provincial Nature Reserve in Xinjiang Uygur Autonomous Region, and (8) Qomolangma National Nature Reserve in Tibet. Camera trapping and sign surveys were used to confirm snow leopard distribution at all sites and population density was estimated using camera trap data with SPACECAP analysis in Taxkorgan, Bortala, Qilian Shan and Yanichiwan Nature Reserves. We also analyzed snow leopard diet and investigated dietary similarity with other carnivores including wolf and red fox in the same habitat. We have conducted surveys about attitude towards carnivores and their causes in snow leopard habitat in the Qomolangma and Gansu Qilian Shan Nature Reserves. We also predicted snow leopard movement across the species range and predicted habitat connectivity based on landscape complexity and varying levels of animal dispersal.

*Speaker

Snow Leopard and Ecosystem Management Plan for the Eastern Himalaya Landscape, Nepal

Maheshwar Dhakal

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Abstract

This landscape management plan was prepared by the Government of Nepal in response to the 2013 Bishkek Declaration and the GSLEP Goal of securing 20 snow leopard landscapes by 2020. The management plan process involved extensive consultation and in-depth analyses of the current bio-climatic and socio-economic situation; an assessment of future climate scenarios that included anthropogenic pressures and climate change impacts; and development of a climate-integrated conservation plan. In doing so, geospatial, hydrological and climatic analyses were undertaken to devise robust conservation strategies that are anchored in the best available science. In addition, pertinent policies and plans were reviewed to align landscape management strategies and activities with the priorities of the Government of Nepal.

The 11,516 km² Eastern Himalaya Landscape of Nepal (EHL-N) is a GSLEP Priority Landscape and an exceptional landscape that is home to the world's tallest mountain, Mt. Everest. The EHL-N is a repository of globally important biodiversity. It also houses vital water towers that provide ecological services critical for lives and livelihoods of hundreds of millions of people downstream. Snow leopards are the top predators of the EHL-N system and play a pivotal role in structuring the landscape's ecological processes and ensuring sustained provision of ecosystem services. Nearly 50 percent of the EHL-N is comprised of snow leopard habitat, which is distributed across four habitat complexes: the 1) Langtang; 2) Gaurishankar; 3) Sagarmatha; and 4) Kangchenjunga habitat complexes.

The EHL-N is also one of the world's most vulnerable areas to the impacts of climate change. The annual average temperature and total precipitation in the EHL-N are projected to increase as much as by 2.6° C and 27 percent, respectively, by 2070 with reference to the current baseline. The snow leopard is likely to be one of the hardest hit species by climate change, as they could lose a substantial portion of their habitat in the EHL-N due to an upward shift of tree line into alpine zones. In addition, ongoing anthropogenic threats are also likely to exacerbate climate change impacts as the cascading effects of climate change will probably negatively affect the natural, human and socio-cultural capital of the landscape. Acknowledging this scenario and integrating both climatic and anthropogenic stressors, 11 critical conservation sites and 14 habitat corridors were identified as hotspots for intensive management

*Speaker

The programmatic strategies for this management plan were developed by focusing on adaptive mechanisms to cope with changing economic, social, political and climatic conditions, while maintaining the essence of the vision and goals for the EHL-N. As such, eight strategies and nearly 70 associated activities were designed for the 10-year period from 2017 to 2026. An estimated budget of USD 5.57 million is required to cover the costs of project activities over this 10-year period. In order to ensure successful implementation of the plan, a comprehensive framework for implementation mechanisms, stakeholder collaboration, monitoring and evaluation was also designed.

An Ounce of Prevention: Poaching and Trafficking of Snow Leopards

James Compton

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Abstract

The survival of Snow Leopards is emblematic of the success needed in wider transboundary conservation concerns across 12 countries in Central and South Asia. Dealing with threats posed by poaching (including as a result of human-wildlife conflict) and trafficking of Snow Leopards and their body parts is an integral part of the overall ecosystem protection approach defined by the 2013 Bishkek Declaration.

TRAFFIC analyzed available information on poaching, seizures and trade of Snow Leopards from 2003 through mid-2016, and augmented that with a survey of expert opinion across 12 Snow Leopard range countries. In the first quantitative estimates of the scale of Snow Leopard poaching and trafficking since 2003, TRAFFIC's report, *An Ounce of Prevention: Snow leopard crime revisited*, published in October 2016, found that the majority of Snow Leopards are killed in retaliation for attacks on livestock (55%) or by non-targeted methods, such as snares (18%).

Only 21 percent of Snow Leopards were poached specifically for the illegal trade in their pelts and products. However, the report found that over half the retaliatory and non-targeted poaching incidents resulted in opportunistic attempts to sell, contributing to the estimated 108–219 Snow Leopards that are illegally traded each year.

However, in contrast to the trade in Tigers, trade in Snow Leopard products seems to be driven by supply, rather than demand. The major emphasis of interventions, therefore, should be to prevent poaching, including by focusing on preventing retaliatory killing of snow Leopards by communities in response to livestock depredation.

The recommendations from TRAFFIC's synthesis provide a foundation from which a comprehensive response can be built on the following priorities: engage relevant governments and intergovernmental processes; support action at community level in range countries; direct targeted technical inputs from experts and institutions; and encourage support from the donor community.

An Ounce of Prevention: Snow Leopard Crime Revisited is available from:
www.traffic.org/storage/Snow-Leopard-Report.pdf

*Speaker

Range-Wide Snow Leopard Phylogeography Supports Three Subspecies

Jan E. Janecka

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Abstract

The snow leopard, *Panthera uncia*, is an elusive high-altitude specialist that inhabits vast, inaccessible habitat across Asia. We conducted the first range-wide genetic assessment of snow leopards based on noninvasive scat surveys. Thirty-three microsatellites were genotyped and a total of 683 bp of mitochondrial DNA sequenced in 70 individuals. Snow leopards exhibited low genetic diversity at microsatellites and virtually no mtDNA variation in the sequenced segments. Based on the pattern of genetic variation in microsatellites, snow leopards underwent a bottleneck in the Holocene (~8000 years ago) coinciding with increased temperatures, precipitation, and upward tree line shift in the Tibetan Plateau. Multiple genetic analyses supported 3 primary genetic clusters: (1) Northern – the Altai region, (2) Central – core Himalaya and Tibetan Plateau, and (3) Western – Tian Shan, Pamir, trans-Himalaya regions. Accordingly, we recognize 3 subspecies, *Panthera uncia irbis* (Northern group), *Panthera uncia*

*Speaker

(Western group), and *Panthera uncia uncioides* (Central group) based upon genetic distinctness, low levels of admixture, unambiguous population assignment, and geographic separation. The patterns of variation were consistent with desert-basin “barrier effects” of the Gobi isolating the northern subspecies (Mongolia), and the trans-Himalaya dividing the central (Qinghai, Tibet, Bhutan, and Nepal) and western subspecies (India, Pakistan, Tajikistan, and Kyrgyzstan). Our study reveals lower levels of connectivity between Himalayas and Karakoram mountains than predicted by most habitat models. Hierarchical Bayesian clustering analysis revealed additional subdivision into a minimum of 6 management units: western Mongolia, southern Mongolia, Tian Shan, Pamir-Himalaya, Tibet-Himalaya, and Qinghai, with spatial autocorrelation suggesting potential connectivity by dispersing individuals up to ~400 km. We provide a foundation for global conservation of snow leopard subspecies, and set the stage for in-depth landscape genetics and genomic studies.

SMART: Improving Protection by Allocating Resources in the Right Areas

Ashley Brooks*

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¹WWF, Kuala Lumpur, Malaysia

Abstract

For over a century, the establishment of Protected Areas has been the fundamental strategy to conserve biodiversity. Well managed Protected Areas and landscapes provide safe sanctuary to threatened flora and fauna as well as essential ecosystem services to local communities. The increase in global wildlife poaching and timber trade is acutely affecting biodiversity. Traditional tools, methodologies, resources, and strategies are not stemming the rapidly modernizing threats to biodiversity. Strategic law enforcement monitoring is the key for protection of biodiversity in Protected Areas. Adaptive Tactical Patrolling (ATP) represents a new holistic approach to protecting species, which encourages Protected Area managers and landscape managers to draw up patrolling strategies as per the requirement of the key species and area. ATP supports the periodic review of enforcement strategies to make changes in line with the changing pressure. It is critical that ATP techniques are implemented with strong law enforcement monitoring systems that are location-specific. Spatial Monitoring And Reporting Tool (SMART) is the most advanced law enforcement monitoring tool for helping site managers combat poaching and other forms of illegal activities. SMART can accommodate all kinds of enforcement related information, such as intelligence, patrol data, threat information, key species information, and wildlife crime details. SMART can provide timely and accurate information on threats, key species locations, and patrol ranger location, which is a key part of ATP. SMART is easy and adaptable enough to be used by local communities for marine, terrestrial and freshwater environments.

*Speaker, WWF, Phnom Penh, Cambodia

Economic Benefits of Conservation Efforts: The Case of Kanchenjunga Conservation Area, Nepal

Deepak Upadhyia

Authors and Affiliations: Deepak Upadhyia^{1*}, Ananta Ram Bhandari¹

¹WWF, Baluwatar, Kathmandu, Nepal

Abstract

The Kanchenjunga Conservation Area (KCA) is a land of amazing beauty and the location of the world's third highest mountain. It harbors some of the world's most important biodiversity, including the charismatic Snow Leopard, as well as forming the headwaters of rivers that provide water for millions of people residing downstream. Agriculture and livestock herding are major livelihood and income sources for KCA communities, and biodiversity is important in maintaining these livelihoods. However, biodiversity losses have direct and indirect negative effects on several aspects of people's lives and ecosystems. Long term conservation success requires community engagement which tends to be fulfilled when communities reap direct benefits from conservation. Realizing this, WWF has implemented two USAID-funded projects in the KCA that aim to address environmental issues in a comprehensive manner that ultimately provides benefits for both people and ecosystems. It is thus important that when conservation efforts are assumed to be providing economic benefits for communities that confirmation of these benefits is made. A recent study by WWF examined the specific economic benefits brought about by USAID project funding in the KCA. A field survey and focus group discussions were conducted in the KCA as the primary means of collecting information for this study. Data collected was analyzed using statistical tools such as descriptive statistics and paired t-test. The study revealed that WWF conservation efforts in the KCA have had positive economic impacts. Adaptive irrigation alone increased agricultural revenue in the KCA by about USD 406,000 annually. An improved cook stove campaign is estimated to have saved 1267 kg of firewood per household annually, or over 420,000 kg of wood saved annually by all beneficiaries. Increases in household incomes, availability of diversified vegetables throughout most of the year, saved time, reduction of tree felling for fuel, and increased community interest in conservation have been some of the key benefits of WWF's work in the KCA. Thus, it is imperative that these achievements be replicated beyond the KCA in similar mountainous regions of eastern Nepal.

*Speaker

MAPs for Cats: Sustainable Use and Trade in Medicinal Plants from Himalayan Snow Leopard range

James Compton

Authors and Affiliations: James Compton^{1*}, Anastasiya Timoshyna¹, Paul Chatterton², Wendy Elliot²

¹TRAFFIC, Bangkok Thailand

²WWF, Gland, Switzerland

Abstract

The presentation will focus on the opportunity to create incentives for the protection of Snow Leopards and their habitats in the Nepal portion of the Eastern Himalayas through sustainable wild-harvesting, cultivation and production of medicinal and aromatic plants (MAPs). MAPs underpin Nepal's traditional medicine systems and provide a critical source of income for the rural poor living in and around Snow Leopard habitat. Numerous factors constrain sustainable production and consumption of MAPs in Nepal in the face of increasing demand and dwindling supplies from the wild.

The proposed program will bring together a wide range of stakeholders to address the conservation of Snow Leopard habitat and the need for increased incentives for communities living in these areas, as well as address land degradation through the sustainable use and trade in MAP resources. Best practice frameworks, e.g. the FairWild Standard for wild-harvesting of MAPs, will be utilized to ensure the long-term sustainability of the target species within the wider ecosystem. The link to production practices having positive impact on Snow Leopard populations and habitats will be an additional unique selling point for MAP products.

The program will explore the business model of sustainable wild-harvesting and cultivation of MAPs and development of related businesses and incentives to achieve the following outcomes: (1) MAPs are cultivated, collected, and harvested sustainably with optimal use of key resources and minimal impact on landscapes and Snow Leopards; (2) Robust value chains are built, thereby strengthening and diversifying livelihoods; (3) Businesses with sustainable social, economic, and environmental returns are developed; (4) Conservation is encouraged by linking products to back-stories of community empowerment, thus incentivizing interested stakeholders. Beyond Nepal, it is hoped that this model can be utilized in other Snow Leopard range countries.

*Speaker

Protecting Biodiversity in the Transboundary Region of the Northern Tian Shan Mountains

Irina Muschik^{1*}

Authors and Affiliations: Johanna Huth^{1*}, Alymian Bektemirov^{1*}

¹NABU, Berlin, Germany

NABU is seeking to improve transboundary cooperation on biodiversity conservation in the Northern Tian Shan between the Almatinsky Nature Reserve, Ile Alatau National Park, and Kolsai Lakes National Park in Kazakhstan and Chon Kemin National Park in Kyrgyzstan. There will be a very brief introduction and then the screening of an explanatory video of about 6 and a half minutes.

*Speaker

Innovative Community Engagement Approaches for Snow Leopard Conservation in Ladakh, India

Pankaj Chadan

Authors and Affiliations: Pankaj Chandan^{1*}, Tsewang Rigzin¹

¹WWF, New Delhi, India

Abstract

Ladakh represents the westernmost extension of the vast Tibetan Plateau, covering an altitude range of 2700 to 7600 m above sea level. The region is also known as cold-desert and is characterized by severe, arid conditions. Temperatures may drop to -40° C in the long winter months between December and April and may rise to 35° C in the short summer season from June to August. This harsh environment is thus home to highly adaptable flora and fauna. A number of mammal species are found in the region, including the Snow Leopard (*Panthera uncia*), Lynx (*Lynx lynx isabellina*), Wild Dog (*Cuon alpinus laniger*), Tibetan Wolf (*Canis lupus chanko*), Blue Sheep (*Pseudois nayaur*), Ladakh Urial (*Ovis orientalis vignii*) and Tibetan Argali (*Ovis ammon hodgsoni*). The eastern part of Ladakh, known as the Changthang, has unique wetland habitats which are key nesting sites for birds like the Black-necked Crane (*Grus nigricollis*).

The Ladakh region is prime Snow Leopard habitat and as such supports a key population of Snow Leopards. This habitat is also shared by mountain communities with very limited livelihood options. Many of these poor and marginalized communities still practice pastoral nomadism and continuously move their livestock from one place to another, as livestock is their main source of income. During the recent past, there were numerous instances where Snow Leopards breached poorly built corrals owned by local communities and engaged in surplus killing of the livestock inside these corrals. This has brought these vulnerable mountain communities in direct conflict with Snow Leopards. In order to address this issue, WWF India has come up with a unique and innovative model wherein through regular and concerted engagement with the communities, this problem is being addressed on long term basis. This presentation highlights various innovative approaches which are being implemented in Ladakh to address human-wildlife conflict at a landscape level.

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A Nation-Wide Snow Leopard Monitoring Program for the Russian Federation: Concept and Implementation Framework

Rodney Jackson

Authors and Affiliations: M.Yu. Paltsyn¹, R.M. Jackson^{2*}, J.P. Gibbs¹, L.V. Iegorova³, A. Karnaukhov⁴

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²Snow Leopard Conservancy, Sonoma, CA, USA

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⁴WWF, Moscow, Russia

Abstract

Drawing upon lessons learned from field-based surveys conducted at multiple sites in Russia the authors devised "do-able" standardized protocols for robustly estimating and monitoring of snow leopard distribution and population abundance across about 12,000 km² covering seven distribution areas within Altai, Tuva and Buryatia Republics and Krasnoyarsky Kray.

The multi-faceted approach developed draws on proven methods used for robust monitoring of other large, secretive felids around the world including tiger, leopard, and lynx, along with the wolverine. The proposed snow leopard monitoring system for Russia is based on a permanent grid consisting of 5x5 km spatial cells (N= 400-460) covering snow leopard habitat, located primarily along the border region with Mongolia, Kazakhstan and China. We modeled potential snow leopard habitat using MaxEnt and known environmental correlates for 2866 snow leopard sightings collected from 2000 to 2016. The projected range extent formed the geographic basis for delineating areas most likely to support and/or sustain this sparsely distributed species.

We constructed the proposed National Snow Leopard Grid across known and projected snow leopard habitats to allow for monitoring at local, regional and national scales, based on two statistically rigorous underlying approaches: (1) Sign-based surveys with spatial replicates for estimating the extent of habitat occupancy; and (2) Spatial capture-recapture (SCR) using non-invasive genetics and camera-trapping to identify individuals. The main outcome will be a precise estimate of inter-annual and long-term population trend. Simultaneous monitoring and integration of select environmental parameters in each grid cell will help managers better understand important drivers for population change, such as prey density and abundance, livestock number, level of poaching, and infrastructure development as well as effects of climate. The monitoring program will rely on existing snow leopard research capacity in Russia, and thus move the process from expert-based "estimates" to more objective, reliable and robust statistical population monitoring.

*Speaker

The Snow Leopard as a Flagship, Umbrella and Keystone Species on the Tibetan Plateau

Tom McCarthy

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⁵Department of Environmental Science, University of California, Berkeley, CA, USA;

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Abstract

The Tibetan Plateau is one of the last wild places in the world, and has the second highest biodiversity of terrestrial megafauna in the world. The harsh, high altitude environment produced unique, cold-adapted mammalian fauna on the Tibetan Plateau, such as the snow leopard, blue sheep, argali, wild yak, Tibetan antelope and Kiang. But this remote region is now threatened by mass infrastructure construction, growing human activities, and climate change. Hence, mammal conservation on the Tibetan Plateau remains an urgent and important issue. Here, we present a framework to identify effective surrogate species by systematically considering the flagship popularity, umbrella capacity, and keystone index of endemic species on the Tibetan Plateau. We found that the snow leopard ranked first in flagship, umbrella and keystone indices among all the endemic mammals on the Tibetan Plateau. Hence, the snow leopard has the most potential to be an effective surrogate species for mammal conservation on the Tibetan Plateau. We also demonstrated that resources directed to snow leopards could also benefit many endemic vertebrate species on the Tibetan Plateau, since snow leopards have a substantial range overlap with endemic birds (median: 79%), reptiles (47%) and amphibians (33%) on the plateau.

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Annex 1: GSLEP Science Symposium Agenda



International Snow Leopard and Ecosystem Forum Science Symposium and Exposition

Global Snow Leopard and Ecosystem Protection (GSLEP) Program

Day 1: Hyatt Regency, Bishkek, Kyrgyz Republic
August 23, 2017

Science Symposium Agenda		
8:30	Registration	
Opening: Welcome Speeches		
9:00	Mr. Abdykalyk Rustamov, Director State Agency on Environment Protection and Forestry (SAEPF)	
9:10	Koustubh Sharma, Senior Ecologist and International Coordinator Snow Leopard Trust (SLT) Global Snow Leopard and Ecosystem Protection (GSLEP) Program	
9:15	Kimberly Rosen, Mission Director - Kyrgyz Republic United States Agency for International Development (USAID)	
9:25	Kate Newman, Vice President, WWF-US	
9:30	Yoko Watanabe, UNDP Global Manager-GEF Small Grants Programme	
9:35	Introduction to Sessions	
Session 1: A Region at Risk – Climate Change in the Snow Leopard Range Areas		
<u>Session Chairs:</u> Rizwan Mehboob, Senior Advisor to the Government of Pakistan on Conservation and the Environment Midori Paxton, Head, Biodiversity and Ecosystems, UNDP		
9:45	Guardians of the Headwaters: Mapping Nature’s Benefits and Climate Change in Six Landscapes across Snow Leopard Range	Ryan Bartlett WWF US
9:55	Potential Distribution of Snow Leopard Habitat Area in the Context of Climate Change: A Modeling Based Approach	Menaka Panta Neupane
10:05	The Priority of Snow Leopard Landscape Conservation at Present and in the Future in the Context of Climate Change	Lu Zhi Peking University
10:15	The Adaptation Gap in High Mountains	Matthias Jurek UNEP

10:25	Ecosystem-based Adaptation in the High Mountainous Regions of Central Asia: Coming from Business as Usual to Climate Informed Adaptation	Claudia Haller GIZ
10:35	Climate Adaptation in Snow Leopard Range Areas	John Farrington WWF AHM Project
10:45	Questions and Answers	
11:00	Coffee Break and Exhibition – 30 Minutes	
Session 2: Technology and Innovation in Snow Leopard Research and Conservation Session Chairs: Tom McCarthy, Director of Snow Leopard Programs, Panthera Andrey Kushlin, Deputy Director, Forestry Policy and Resources, UNFAO		
11:30	Snow Leopard Genetics and Population Connectivity along the Nepalese Himalayas	Kanchan Thapa WWF Nepal
11:40	Autonomous Ground and Air Systems for Snow Leopard Protection	Princess Aliyah Pandolfi Kashmir World Foundation
11:50	The SAFE Systems Approach to HWC: A Move away from Symptoms-based Management Towards Integrated HWC Management.	Ashley Brooks WWF Tigers Alive Initiative
12:00	What Spatial Capture-Recapture Can Tell You about Snow Leopard Distribution and Abundance	David Borchers University of St. Andrews
12:10	The Need for Long-Term Studies in Snow Leopard Conservation	Kulbushansingh Suryawanshi Nature Conservation Foundation
12:20	Questions and Answers	
1:00	Lunch and Exhibition – 60 Minutes	
Session 3: Ensuring Sustainability in Conservation and Financing for Snow Leopards <u>Session Chairs:</u> Keshav Varma, Director, Global Tiger Initiative Council Jaime Cavalier, Senior Biodiversity Specialist, GEF		
2:00	The Snow Leopard as an Icon for Sustainable Development	Midori Paxton UNDP
2:10	Community-based Actions for Conservation of the Snow Leopard and its Ecosystems	Yoko Watanabe UNDP
2:20	Catalyzing Knowledge into Conservation Action: The Save Our Species Initiative	Boris Erg IUCN
2:30	Valuation of Ecosystem Services from Tiger and Snow Leopard Landscapes: A Manual on Economic Valuation Approaches for Practitioners	Madhu Verma, Indian Institute of Forest Management
2:40	Valuation of Ecosystem Services in Snow Leopard Landscapes of Asia	Ranjini Murali NCF
2:50	Questions and Answers	
Session 4: Community-based Conservation in Snow Leopard Range Areas <u>Session Chairs:</u> Mary Melnyk, Environment Team Leader, USAID Asia Bureau Michael Despines, Snow Leopard Trust, Executive Director		
3:00	A Framework for Community-Based Conservation	Charudutt Mishra SLT

3:10	From Mining to Protection: Tost Tosonbumba Nature Reserve, Mongolia	Bayarjargal Agvaantseren SLT
3:20	A School Student-driven Trap Collection Campaign in Snow Leopard Range Areas of Western Mongolia	Chimeddorj Buyanaa WWF-Mongolia
3:30	Empowering Local Communities through Snow Leopard Conservation: Stories from Tajikistan and Kyrgyzstan	Tanya Rosen Panthera
3:40	Ecological Theatre: A New Approach in Ecological Education in the Kyrgyz Republic	Farida Balbakova WWF Kyrgyzstan Program Coordinator
3:50	The Role of Indigenous Cultural Practitioners (ICPs) in Conservation of Snow Leopards	Norbu Lama Land of the Snow Leopard Network
4:00	Questions and Answers	
4:10	Coffee Break and Exhibition – 20 Minutes	
Session 5: Field Studies and Conservation in Practice		
<u>Session Chairs:</u> Rodney Jackson, Director, snow Leopard Conservancy Yoko Watanabe, Global Manager-GEF Small Grants Programme, UNDP		
4:30	Snow Leopard Conservation and Research in Key Landscapes of China	Shi Kun Beijing Forestry University
4:40	Eastern Nepal GSLEP Landscape Management Plan	Maheshwar Dhakal Ministry of Forest and Soil Conservation
4:50	An Ounce of Prevention: Poaching and Trafficking of Snow Leopards	James Compton TRAFFIC-Asia
5:00	Range-Wide Snow Leopard Phylogeography Supports Three Subspecies	Jan Janecka, Duquesne University
5:10	Questions and Answers	
5:30	Symposium Closing: Marco Lambertini, Director General, WWF International Charudutt Mishra, Science & Conservation Director, Snow Leopard Trust	
5:45	Conference News	
6:00	Reception and Exhibition	
Evening Session 6: Conservation Practitioners' Seminar – Hyatt Hotel Conference Room		
8:00	Training on Scat Collection for Genetic Surveys	Jan Janecka Duquesne University
8:30	Training on Landscape Management Planning for GSLEP Priority Sites	Rinjan Shrestha, WWF-Canada and Yashveer Bhatagar, SLT



Day 2: Jannat Regency – Royal Ballroom, Bishkek, Kyrgyz Republic
August 24, 2017

Session 7: Further Talks on Aspects of Snow Leopard Conservation		
<u>Session Chair:</u> Sandro Lovari, Professor, University of Siena Lu Zhi, Professor, Beijing University		
8:30	Registration	
9:00	SMART: Improving Protection by Allocating Resources in the Right Areas	Ashley Brooks WWF Tigers Alive Initiative
9:10	Economic Benefits of Conservation Efforts: The case of the Kangchenjunga Conservation Area, Nepal	Deepak Upadhya WWF-AHM Project
9:20	MAPs for Cats: Sustainable Use and Trade in Medicinal Plants from Himalayan Snow Leopard Range	James Compton TRAFFIC
9:30	Protecting Biodiversity in the Transboundary Region of the Northern Tian Shan Mountains [Video]	Johanna Huth, Alymjan Bektemirov NABU
9:40	Questions and Answers	
9:50	Innovative Community Engagement Approaches for Snow Leopard Conservation in Ladakh, India	Pankaj Chadan WWF-India
10:00	A Nation-Wide Snow Leopard Monitoring Program for the Russian Federation: Concept and Implementation Framework	Rodney Jackson Snow Leopard Conservancy
10:10	The Snow Leopard as a Flagship, Umbrella and Keystone Species on the Tibetan Plateau	Tom McCarthy Panthera
10:20	Questions and Answers	
10:50	Symposium Closing	
	Announcements	

Annex 2: International Snow Leopard and Ecosystem Forum Agenda



PROGRAM International Snow Leopard and its Ecosystem Conservation Forum

Background and Purpose:

The Global Snow Leopard Conservation Forum was held on 23rd October, 2013 in Bishkek under the leadership of the President of the Kyrgyz Republic, His Excellency A. Atambaev. The 12 snow leopard range countries unanimously endorsed the Bishkek Declaration, with active support from the international community working on snow leopard and environment conservation. To implement the goals set in the Bishkek Declaration, the Global Snow Leopard and Ecosystems Protection Program (GSLEP) was initiated with its secretariat based in Bishkek.

The year 2017 marks the midpoint of the implementation of the GSLEP program. The President of the Kyrgyz Republic has invited his counterparts on 24-25 August to Bishkek to attend the **International Snow Leopard and Ecosystem Conservation Forum (Forum 2017)**. The purpose of Forum 2017 is to strengthen political will at the highest level, and secure resources to support the implementation of the GSLEP program across the snow leopard range countries.

To promote investment and mobilize resources for environmental projects, an integrated Green Investment Forum is being organized along with the Forum 2017. The purpose of the Green Investment Forum is to discuss sustainable financial mechanisms, regional projects and industrial investments to support implementation of the GSLEP Program across the mountains of the snow leopard range countries.

Organizers: Government of the Kyrgyz Republic, President Office of the Kyrgyz Republic, GSLEP Secretariat.

Partners: Global Environment Facility (GEF), Global Tiger Initiative Council (GTIC), Nature and Biodiversity Conservation Union (NABU), Snow Leopard Trust (SLT), United Nations Development Program (UNDP), United States Agency for International Development (USAID) and World Wildlife Fund (WWF).

Venue: State Residence "Ala-Archa" in Bishkek, Kyrgyz Republic, August 24-25, 2017.

Work Languages: The working languages of the 2017 Forum are English and Russian.

Day 1: August 24 2017, «Hotel Jannat Regency»	
10:00- 11:00	<p>Senior Officials Meet to discuss the final text of the Declaration</p> <p><u>Opening Remarks:</u> Mr. A. Rustamov, Director of the State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic</p> <p><u>Chair:</u> Mr. A. Rustamov, Director of the State Agency for Environmental Protection and Forestry under the Government of the Kyrgyz Republic</p> <p><u>Co-Chair:</u> Keshav Varma, GTIC</p> <p><u>Moderator:</u> Mr. N. Zhumaev, Deputy Director of the State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic</p> <p><u>Participation:</u> Senior officials of Snow Leopard Range Countries and strategic forum partners (GEF, GTIC, NABU, SLT, UNDP, USAID, and WWF)</p> <p><u>Expected output:</u> Representatives of snow leopard range countries agree with the final version of the Declaration for adoption on August 25, 2017</p>
11:11:30	<p>Coffee</p>
11:30-12:30	<p>Assessment and monitoring of snow leopard population and status of habitat in GSLEP landscapes</p> <p>Chair: Pakistan</p> <p>Co-Chair: Nepal</p> <p><u>Moderator:</u> Keshav Varma</p> <p><u>Participation:</u> Senior officials of Snow Leopard Range Countries and strategic forum partners (GEF, GTIC, NABU, SLT, UNDP, USAID, and WWF)</p> <p><u>Presenters:</u> Koustubh Sharma, GSLEP Secretariat</p>

	<u>Expected outcome:</u> Roadmap for resourcing, planning, and implementation
12:30-13:15	<p>Smart Green Infrastructure</p> <p>Chair: Russian Federation</p> <p>Co-Chair: Mr. Siddhanta Das, India</p> <p><u>Participation:</u> Open</p> <p><u>Presenters:</u> Kate Newman, WWF</p> <p><u>Expected outcome:</u> Plan for mapping potential infrastructure projects in snow leopard landscapes and adoption of green practices by Governments and International Financial Institutions (IFI).</p>
13:15-14:30	Lunch
14:00 -15:00	<p>Side Event - "Best Practices of Environmental Protection Activities at the Community Level of the Central Tien Shan for Conservation of the Population of the Snow Leopard and its Feeding Base in Kyrgyzstan"</p> <p>Organizers: Central Asian Hub / Mountain Partnership with the Office of the University of Central Asia, Bishkek</p> <p>Venue: Crystal Hall</p>
14:30-15:30	<p>Economics of ecosystem services</p> <p>Chair: Afghanistan Co-Chair: Mongolia</p> <p><u>Presenters:</u> Madhu Verma, IIFM Charu Mishra, SLT</p> <p>Expected outcome: Action plan for valuation of ecosystem services in GSLEP landscapes and their subsequent monetization.</p>
15:30-17:00	<p>Conservation Finance</p> <p>Chair: Bhutan Co-Chair: Kazakhstan</p> <p><u>Presenters:</u> Keshav Varma, GTI Council</p>

	<p>Yoko Watanabe GEF Rizwan Mehboob, Pakistan</p> <p>Expected outcome: Secure country, IFI and donor support for regional conservation trust funds.</p> <p>Venue: Crystal Hall</p>
17:00	Coffee
17:00-18:00	<p>Bilateral meetings, discussions etc.</p> <p>Venue: TBD following requests</p>
<p><i>1) Arrival of the Head of the countries / governments / delegations of countries of the snow leopard range</i></p> <p><i>Afghanistan, Bhutan, China, India, Kazakhstan, Mongolia, Nepal, Pakistan, Russia, Tajikistan, Uzbekistan</i></p> <p><i><u>Note:</u> Transfer from the International Airport "Manas" to the place of residence. Accommodation (according to the layout scheme)</i></p>	
18:00 - 21:00	<p>Dinner on behalf of the State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic</p> <p><u>Location:</u> Ethno complex "Supara"</p> <p>Note: Snow Leopard Range countries, high-level guests, representatives of international and donor organizations are invited to dinner</p>
	Transfer to hotels

Day 2: August 25 Grand Opening of the Forum (Forum Venue: State residence No. 1 Ala-Archa)	
08:00 - 09:00	Transfer from hotel (s) to State residence “Ala-Archa 1” Reception House of “Enesay”
09:00 - 10:00	Registration / Coffee
10:00 - 11:30	<p>Grand Opening of the Forum</p> <p>Video of the Forum 2017 (2 min.)</p> <p>Opening speech by the President of the Kyrgyz Republic H.E. Almazbek Atambaev</p> <p>A video message from the Secretary-General of the United Nations, by H.E. Antonio Guterres</p> <p>Speech by H.E. Ms. Cihan Sultanoğlu, Assistant Secretary General of the United Nations, Assistant Administrator of the United Nations Development Programme (UNDP) and Director of the Regional Bureau for Europe and the CIS of UNDP</p> <p>Statements by the snow leopard range countries:</p> <ul style="list-style-type: none"> - H.E. Sarwar Danish - Vice President of the Islamic Republic of Afghanistan - H.E. Boriy Alikhanov, Deputy Speaker of the Legislative Assembly of the Oliy Majlis, Republic of Uzbekistan - Mr. Dorji Yeshey, <i>Minister of Agriculture and Forests</i> of the Bhutan - Mr. Mushahid Ullah Khan, Minister for Climate Change of the Islamic Republic of Pakistan - Mr. Hairullo Ibodzoda, Head of the State <i>Committee</i> on Environmental Protection, Republic of Tajikistan - Mr. Kerimov Murad Kerimovich, Deputy Minister of Natural Resources and Ecology of the Russian Federation - Mr. Nysanbaev Erlan Nuralievich,– Vice-minister of Agriculture of the Republic of Kazakhstan - Mr. Li Chunliang, Deputy Head of the State Division of Forestry, People's Republic of China - Mr. Prakash Mathema - Secretary of Ministry of Forests and Soil Conservation of Nepal - Mr. Tserendorzhin Batbayar, Vice Minister of Environment and Tourism of Mongolia - Mr. Siddhanta Das, Director General of Forests, Government of India - Mr. Batyrmurad Orazmyradov - Chairman of the State Committee for Environmental Protection and Land Resources of Turkmenistan <p>(3-5 minutes each)</p>

	<p><u>Moderated by:</u> Moderator: Mc. E.K. Sarieva - Deputy Head of the President Office, Kyrgyz Republic</p>
11:30 - 12:00	<p>Statements by International Strategic Partners of the Forum 2017:</p> <ul style="list-style-type: none"> -Mr. Erik Solheim, Executive Director of UNEP -Mr. Marco Lambertini, President of WWF -Mr. Michael Despines, Executive Director SLT -Mr. Thomas Tennhardt, Vice-president of NABU - Mr. Keshav Varma- CEO of the GTI Council - Mr. Jaime Cavalier, GEF <p>(3- 5 minutes each)</p> <p><u>Moderated by:</u> Moderator: Ms. E.K. Sarieva - Deputy Head of the President Office, Kyrgyz Republic</p>
12:00- 12:05	<p>Keynote Speech by Goodwill ambassador Ms. Dia Mirza, Formal handover of signatures</p>
12:05 - 14:00	<p>Lunch (Guest house Ala-Archa № 4)</p>
<p>Thematic sessions: Presentations by international organizations, the business community</p>	
14:00 - 15:30	<p>Video Script by H.E. Achim Steiner, UNDP Administrator SESSION 1: Regional projects and Conservation Finance for GSLEP Program implementation Presentation and Discussion</p> <ul style="list-style-type: none"> - Mr. Keshav Varma, GTI Council - concept note for multi-country projects for resource mobilization for conservation of snow leopard and its ecosystems - Co-Presenter Mr. Jaime Cavalier, GEF - Ms. Midori Paxton, Head of the UNDP Biodiversity Program <p><u>Chair:</u> Mr. Dorji Yeshey, <i>Minister of Agriculture and Forests</i> of the Bhutan <u>Co-Chair:</u> Mr. Siddhanta Das, Director General of Forests, Government of India <u>Co-Chair:</u> Mr. Erik Solheim, Executive Director of UNEP</p> <p><u>Moderator:</u> Keshav Varma, GTI Council <u>Venue:</u> Reception House of “Enesay”</p>
15:30- 16:00	<p>Coffee Break</p>

16:00 – 17:45	<p>SESSION 2: Business and Industry</p> <p>Presentation:</p> <ul style="list-style-type: none"> - Mr. Daniyar Imanaliev, Deputy Minister of Economy of the Kyrgyz Republic - Mr. A.Orozbekov, Director of the Agency for Investment Promotion under the Ministry of Economy of the Kyrgyz Republic - Mr. Binod Chaudhary, Chaudhary Group, Nepal -Mr. Sulav Agarwal, Federation of Nepalese Chambers of Commerce and Industry (FNCCI) , Nepal - Mr. Hari Sankaran, IL&FS - Mr. Himanshu Vyas, Gujarat Chamber of Commerce and Industry - Mr. Sumit Saran, Future Group, India - Mr. Samir Agarwal, Arvind Group, India - Mr. Wang Shi, China Vanke, China <p>Presentations BY Business Leaders (5 mins. each)</p> <p>Chair: Mr. A. Orozbekov, Director of the Agency for Investment Promotion under the Ministry of Economy of the Kyrgyz Republic</p> <p>Co-Chair: Keshav Varma, GTI Council</p> <p>Format of participation: Representatives of the business sector of the Kyrgyz Republic, international companies</p> <p>Venue: Reception House "Enesay"</p>
17:45 - 18:00	<p>CLOSING OF FORUM 2017 Endorsing of the Bishkek Declaration 2017 on Snow Leopard Conservation</p> <p>Co-Chair: Mr.Mushahid Ullah Khan, Minister for Climate Change of the Islamic Republic of Pakistan</p> <p>Chair: Ms. E.K. Sarieva - Deputy Head of the President Office, Kyrgyz Republic</p> <p>Venue: Reception House of “Enesay”</p>
18:00 - 19:30	Official Reception (State Residence No. 1 Ala-Archa)
19:30	Transfer to hotels



Photo: WWF Nepal/Sanjog Rai

For further information, please visit:

Global Snow Leopard and Ecosystem Protection Program
<http://www.globalsnowleopard.org/>

WWF Asia High Mountains Project
<https://www.worldwildlife.org/ahm>

Snow Leopard Trust
<https://www.snowleopard.org/>