FINAL PROJECT REPORT

ON

TRANSBOUNDARY COOPERATION FOR SNOW LEOPARD AND ECOSYSTEM CONSERVATION

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and
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Cover photo: Sagar Gosavi

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ACRONYMS

CEPF	Critical Ecosystem Partnership Fund
CITES	The Convention on International Trade in Endangered Species of Wild Fauna and Flora
DEFRA	The Department for Environment, Food, and Rural Affairs
EIA	Environment Investigation Agency
GEF	Global Environment Facility
GSLEP	Global Snow Leopard and Ecosystem Protection Program
GTI	Global Tiger Initiative
HR	Human Resources
INTERPOL	International Police Criminal Organization
IUCN	International Union for the Classification of Nature
IWT	Illegal Wildlife Trade
MoU	Memorandum of Understanding
NABU	Nature and Biodiversity Conservation Union
NCF	Nature Conservation Foundation
NEST	National Environment Security Taskforce
NGO	Non-Government Organization
NSLEP	National Snow Leopard and Ecosystem Priorities
PA	Protected Areas
PASK	Population Assessment of Snow Leopards in Kyrgyz Republic
PAWS	Population Assessment of the World's Snow Leopards
PSLEP	Pakistan Snow Leopard Ecosystem Priorities
SAEPF	State Agency for Environment Protection and Forestry
SCM	Steering Committee Meeting
SLC	Snow Leopard Conservancy
SLN	Snow Leopard Network
SLT	Snow Leopard Trust

SMART	Spatial Monitoring and Reporting Tool
SPAI	Snow Leopard Population Assessment India
TRA	Threats Reduction Analysis
UN	United Nations
UNDP	United Nation Development Programme
UNEP	United Nations Environment Protection
USAID	United States Agency for International Development
WWF	World Wildlife Fund
WPSI	Wildlife Protection Society of India

1. INTRODUCTION

This global project was initiated to strengthen transboundary conservation for snow leopards and their high mountain ecosystems to ensure stability of global snow leopard population by addressing drivers of existing and emerging threats with special focus on Central Asia. This project was funded by GEF with UNDP Kyrgyzstan as an implementing partner and the Snow Leopard Trust (SLT) as the executing NGO. In 2016, 1,000,000 USD were approved from the GEF5 granting cycle for this global project. In 2017, the project document was signed between GEF and UNDP, and in August 2017, regular project operations started with Snow Leopard Trust (SLT) as the executing partner.

The snow leopard (*Panthera uncia*) is an apex predator and global flagship species that has an extremely large habitat range inhabiting mountain ecosystems spanning 12 countries and around 1.8 million km^2 across central and south Asia. The population size is estimated to be between 3,500 to 7,000 individuals in the wild and it is classified by IUCN as Vulnerable. It is a culturally, ecologically, and economically important symbol of healthy high-mountain ecosystems.

The mountain ecosystems of Central and South Asia are sparsely populated due to the topography, high altitudes and harsh continental climate (cold winters, hot summers and unstable rainfall patterns). They support snow leopards, their prey, and a vast biological diversity. They also contribute to human wellbeing – locally, regionally, and globally – for hundreds of millions of people, through supporting a wide range of ecosystem services such as water provision, grazing for livestock, mineral resources, medicinal supplies and products, cultural traditions and spiritual values, and inspiration for tourism and recreation.

The snow leopard is threatened across its range by human activities including direct impacts from illegal capture and trade, as well as retaliatory killing following predation on livestock. Indirect threats include increasing livestock and over-grazing, reducing their natural prey, habitat fragmentation and degradation from infrastructure developments, and climate change. These threats are compounded by low capacity of wildlife, customs and border agencies, and weak transboundary cooperation.

There has been limited experience in transboundary cooperation in the Central Asian region in environmental management and in particular in joint management and conservation of transboundary landscapes. In addition, national regulation implementation and enforcement remain weak particularly in transboundary areas due to the limited administrative capacity. A common objective of all Central Asian countries' national action plans to protect snow leopard ecosystems is to strengthen transboundary collaboration including through the establishment of landscape-level transboundary conservation areas, the promotion of study exchanges between PAs of both adjacent and regionally linked range countries, and addressing knowledge gaps through joint research and monitoring. There is a need for regional coordination and technical support to complement the national actions for enabling the transboundary conservation of snow leopards and their habitats.

This project aimed to strengthen transboundary cooperation for the conservation of snow leopards and their mountain ecosystems by strengthening the recently established Global

Snow Leopard and Ecosystem Protection Programme (GSLEP) and thereby supporting the range countries to develop and implement their own national programmes (NSLEPs), several of which are supported by existing or proposed GEF projects. It aimed to deliver benefits for all 12 range countries by strengthening the global coordination mechanism (GSLEP Secretariat) and by developing and disseminating knowledge and tools for effective transboundary conservation of snow leopard ecosystems. Specifically, focused on four Central Asian countries (Kazakhstan, Kyrgyz Republic, Tajikistan and Uzbekistan) where built capacity for effective transboundary cooperation was developed. One transboundary snow leopard landscape, the Sarychat / Northern Tien Shan landscape, which is shared between Kazakhstan and Kyrgyz Republic was selected as the project's pilot landscape for testing and demonstrating innovative transboundary cooperation approaches and tools.

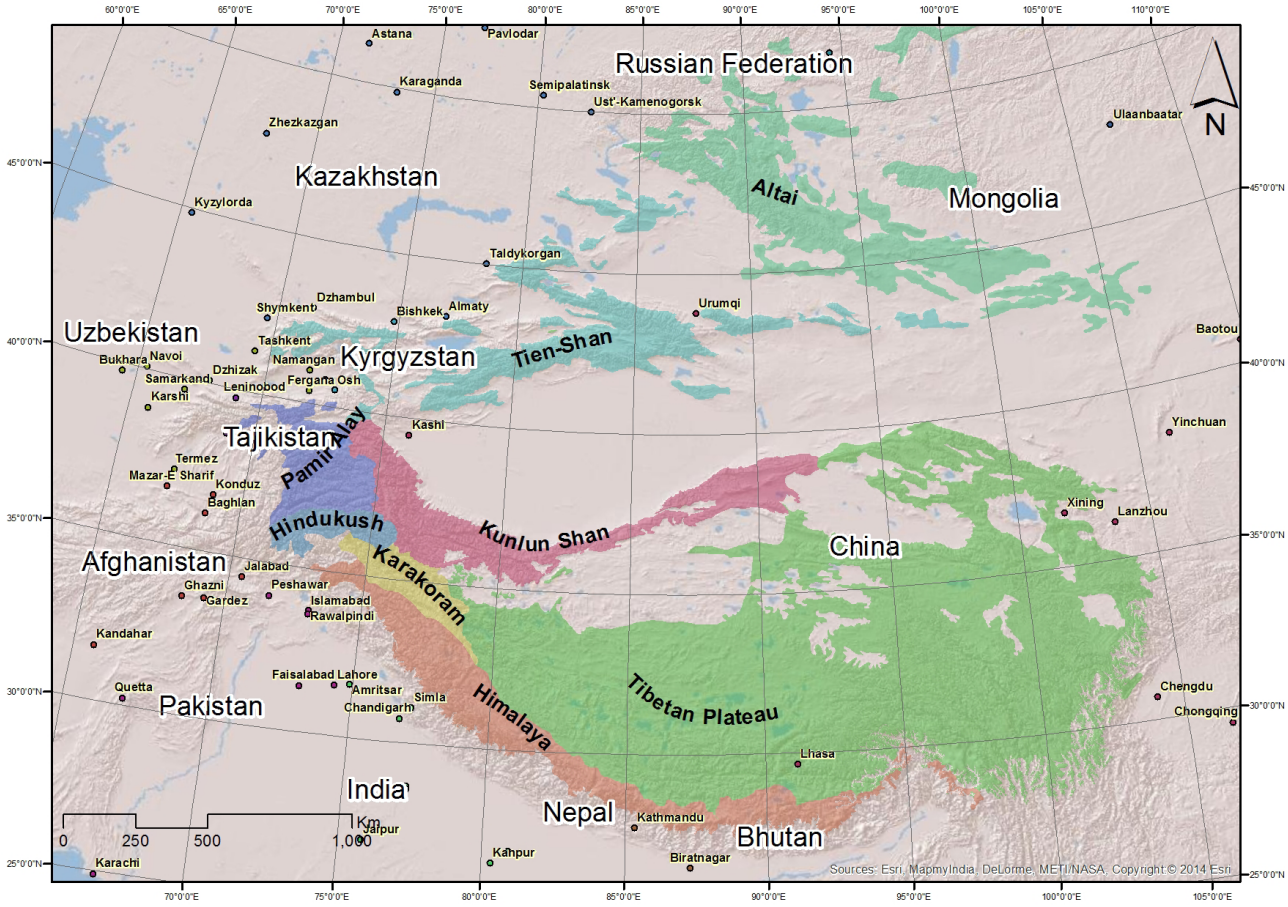


Figure 2: Map of snow leopard distribution and range countries

1.1. Global Snow Leopard Ecosystem Protection Programme (GSLEP)

GSLEP is the implementing entity for this project. GSLEP was launched at the Global Snow Leopard Forum in October 2013, through the adoption of the *Bishkek Declaration on the Conservation of Snow Leopards*, which united all 12 range countries in a common programme. It aims to establish a comprehensive, collaborative range-wide effort that unites range country governments, non-governmental and intergovernmental organizations, local communities, and the private sector to conserve snow leopards and their valuable high-mountain ecosystems. One of the GSLEP's core principles of snow leopard conservation is 'Ensuring landscape-level transboundary conservation'. The *Bishkek Declaration*, which was adopted by all 12 range countries at the forum, provided the foundation for a global framework for government-led conservation of Snow Leopards and their habitat. This foundation, developed through a number of subsequent technical meetings has enabled the development of a set of 12 National Snow Leopard and Ecosystem Priorities (NSLEP) and a Global Support Programme. A preliminary list of 23 snow leopard priority landscapes has been identified, and a goal of protecting 20 such landscapes by 2020 ("Secure 20 by 2020"). has been set. GSLEP Secretariat and Steering Committee has been established to coordinate and manage GSLEP implementation at global level. The total funding required for GSLEP implementation was identified as $190.4 million with $91.6 million from national budgets of the 12 range countries and $98.8 million from international donors. Finally, in 2014, a revised and updated version of the *Snow Leopard Survival Strategy* was published by the Snow Leopard Network (SLN).

The GSLEP benefits from the close support of a large number of international organisations, including: Global Tiger Initiative (GTI), Nature and Biodiversity Conservation Union (NABU), Snow Leopard Conservancy (SLC), Snow Leopard Trust (SLT), United Nations Development Programme (UNDP), United States Agency for International Development (USAID), World Bank, World Wildlife Fund (WWF), and others.

The full list of stakeholders who assisted with the implementation of the project is provided in Annex 1.

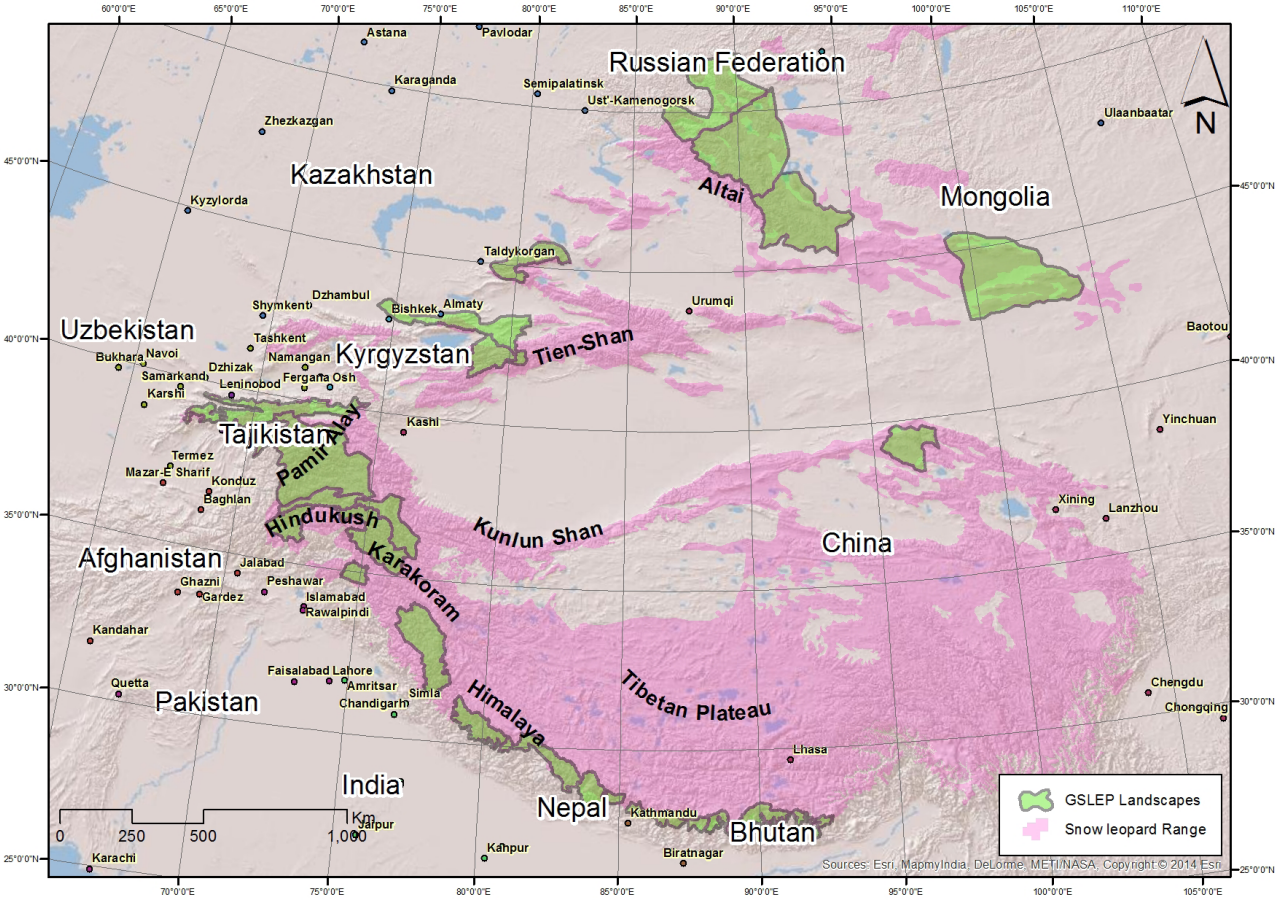


Figure 3: Map showing the 23 snow leopard landscapes so far identified under GSLEP

1.2 Barriers to project implementation

For the next decades, and without this project's intervention, pressures from livestock herding and retaliatory killing, illegal wildlife trafficking, infrastructure development, and climate change will continue to increase the threats on snow leopard ecosystems. While there are several initiatives (at national and global levels) that address snow leopard conservation issues in individual range countries, these efforts are currently not adequately coordinated particularly at the level of transboundary landscapes to ensure a systematic and effective strategy. Likewise, efforts to design and implement inter-governmental strategies and programs for conservation of snow leopard and other species in transboundary areas are very much limited. To kick start the implementation of the ambitious conservation plans that were presented by the snow leopard range countries at both national and global levels and to ensure long term sustainability of the activities, the long-term solution proposed by the project is to put in place an effective and coherent strategy and process for coordinating national and global efforts, knowledge sharing and monitoring impacts to secure national and transboundary snow leopard landscapes and ecosystems particularly in the Central Asian region. Such improvements will enable the range countries to address these issues and accrue tangible environmental, economic and social benefits from conservation and utilization of their natural resources.

However the following three inter-related barriers were impeding this long term solution from emerging:

Barrier 1: Absence of an effective system for knowledge generation and sharing for transboundary landscapes:

While research had been conducted in some of the range countries, and wildlife authorities had access to some material on effective management and enforcement, there was no systematic effort to gather, analyse and disseminate best practices and knowledge across snow leopard ecosystems, and a particular gap existed around the knowledge needed for transboundary conservation and enforcement. In order to underpin a coordinated and effective transboundary conservation strategy, there was a need for systematic gathering of knowledge around areas such as management planning and protection of ecosystems; effective approaches to working with communities to reduce human wildlife conflict and improve the sustainability of grazing systems; and coordinated enforcement from site-level up, across the illegal wildlife trafficking chain.

Knowledge and best practice need to be shared, disseminated and discussed collaboratively in order to learn from global experience in dealing effectively with transboundary conservation challenges, particularly those of high mountain ecosystems, many of them under pressure from intensification of infrastructure development, livestock grazing and climate change. In addition to the challenges of expanding protected area systems and managing the human-wildlife interface in production landscapes, there is also a lack of an effective enforcement model for preventing poaching and illegal trafficking, for apprehending and prosecuting perpetrators, and for strengthening the criminal justice system and border controls. Means of communicating and sharing knowledge, information and data across range countries were also limited.

Effective transboundary management of snow leopard ecosystems was also hampered by the limited systemic and institutional capacity at the regional level, as indicated by the low baseline Capacity Scorecard assessment of just 24%. There was a great need for capacity development at all levels and in sectors including wildlife management, customs, border control and development planning.

Barrier 2: Absence of a common monitoring framework for measuring progress and evaluating success.

There was some data for particular areas and time periods resulting from research and conservation initiatives over the past few decades, particularly through the international Snow Leopard Trust and the Snow Leopard Conservancy. However, there was an absence of a comprehensive system of data on the status, health and trends of snow leopards, their prey species, their habitats, and the threats they face. In order to design and monitor the effectiveness of a coordinated and effective transboundary conservation strategy for snow leopard ecosystems, there was a need for an agreed, common monitoring framework. This needs to be capacitated and resourced in order to maintain comprehensive and up-to-date information on the health of snow leopards and the ecosystems of which they are the apex predator, and in order to track the results and impacts of transboundary conservation initiatives. Such a framework needs to be able to be implemented at multiple levels, including national, transboundary ecosystem and global scales.

Efforts to collect data were limited, fragmented and unsustainable, and were based on varying indicators. In order for transboundary approaches to be followed in the GSLEP landscapes, there was a need for a model which involves a broad range of players, including communities (citizen science) as well as government and research institutions, across national boundaries in a particular ecosystem, in agreeing on indicators and means of measurement, and a need to develop these into a national and global system for monitoring and evaluation. Without the availability of systematic information and trends over time, it was not possible to identify the optimal mix of landscape management, protection and enforcement measures needed to conserve snow leopard habitats, nor to measure progress.

Barrier 3: National and Global snow leopard ecosystem protection programs have been drafted but are not currently funded:

Using the charismatic snow leopard as a flagship, all 12 GSLEP range state governments are for the first time united around a shared vision to address high-mountain development issues over the period 2014–2020 to conserve snow leopards and their valuable high-mountain ecosystems. The GSLEP initiative also engages non-governmental and intergovernmental organizations, local communities, and the private sector. There is agreement on the 12 individual National Snow Leopard and Ecosystems Priorities (NSLEPs), and a vision for four Global Support Components to address issues transcending national boundaries. All of this planned work, however, needed to be enabled through the mobilization of resources from a wide range of sources on a sustained basis, for the goals of the GSLEP to be achieved. Despite national contributions, there was an estimated funding gap of $91 million across the 12 range countries (and a gap of US$ 11.1M (80.6%) out of a total budget of US$ 14 million for the four target countries in Central Asia) over this period, and there was a need to put in place a coordinated approach to leveraging resources on an ongoing basis, whilst also assisting with technical support and knowledge sharing. There was also a need for an integrated sustainable financing strategy that taps into domestic and international, private and public, traditional and innovative sources of finance. This includes a targeted approach to private sector stakeholders, not only in relation to funding, but also, for those businesses directly operating in these landscapes, to change the way they do business, making snow leopard ecosystem conservation efforts more cost-effective in the long term.

To address these barriers and establish transboundary cooperation, the project was conceived in 2014 during the first GSLEP operational workshop in Issykul. In 2016, 1,000,000 USD were approved from the GEF5 granting cycle for this global project. In 2017, the project document was signed between GEF and UNDP, and in August 2017, regular project operations started with Snow Leopard Trust (SLT) as the executing partner.

1.3 Project Goal, Objectives and Proposed Outputs

Project goal: Global snow leopard populations, and their critical mountain ecosystems, are in favourable conservation status

Project Objective: To strengthen transboundary conservation of snow leopard ecosystems and landscapes to ensure stability of global snow leopard population by addressing drivers of existing and emerging threats with special focus on Central Asia.

The project objective was achieved through the implementation of three interconnected components. Component 1 improved knowledge sharing through the development of tools, guidelines and mechanisms for transboundary cooperation made available through an on-line platform. Institutional and personnel capacity was developed for wildlife agencies, PAs, customs agencies and border guards, as measured by the UNDP Capacity Assessment Scorecard. Effective enforcement mechanisms were introduced to relevant agencies.

Component 2 developed a common monitoring framework for snow leopard populations and ecosystems and tested it across the pilot landscape. Results were incorporated into a spatial database for monitoring and management which was used to identify sustainable landscape management measures in the snow leopard habitat. These were presented to stakeholders for implementation.

Component 3 strengthened the GSLEP Secretariat's capacity to provide technical coordination and other support to the range countries. It developed, piloted and shared global and national tools for financing snow leopard ecosystem conservation and established dialogue platforms with the private sector. The three components resulted in the following project outcomes:

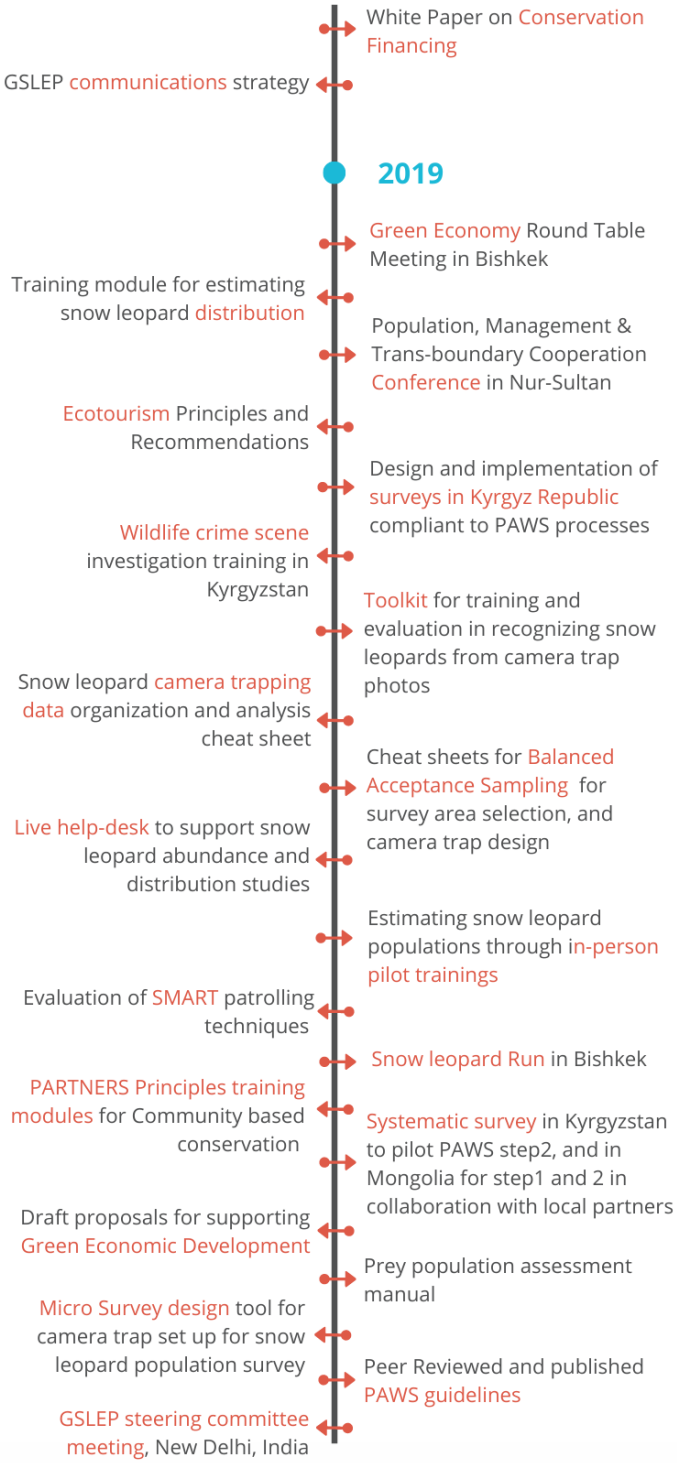
Outcome 1: Key stakeholders have sufficient knowledge, capacity and tools for effective transboundary conservation of snow leopard ecosystems.

Outcome 2: Global monitoring framework developed for snow leopard ecosystems, demonstrated and adopted by range countries.

Outcome 3: Effective and sustainable transboundary conservation mechanism for snow leopard ecosystems.

This report details the work that was completed under this project. It is classified into three major outputs.

2. TIMELINES OF PROJECT OUTPUTS


White Paper on Conservation Financing
GSLEP communications strategy
2019
Green Economy Round Table Meeting in Bishkek
Training module for estimating snow leopard distribution
Population, Management & Trans-boundary Cooperation Conference in Nur-Sultan
Ecotourism Principles and Recommendations
Design and implementation of surveys in Kyrgyz Republic compliant to PAWS processes
Wildlife crime scene investigation training in Kyrgyzstan
Toolkit for training and evaluation in recognizing snow leopards from camera trap photos
Snow leopard camera trapping data organization and analysis cheat sheet
Cheat sheets for Balanced Acceptance Sampling for survey area selection, and camera trap design
Live help-desk to support snow leopard abundance and distribution studies
Estimating snow leopard populations through in-person pilot trainings
Evaluation of SMART patrolling techniques
Snow leopard Run in Bishkek
PARTNERS Principles training modules for Community based conservation
Systematic survey in Kyrgyzstan to pilot PAWS step2, and in Mongolia for step1 and 2 in collaboration with local partners
Draft proposals for supporting Green Economic Development
Prey population assessment manual
Micro Survey design tool for camera trap set up for snow leopard population survey
Peer Reviewed and published PAWS guidelines
GSLEP steering committee meeting, New Delhi, India


2020
Background paper for policy recommendations to manage unusual and conflict situations involving snow leopards
Analysis of legislations related to illegal trans-boundary trade and recommendations for harmonization
Training module for camera trap surveys
Training module for Ungulate surveys
PARTNERS Principles training modules for Community based conservation
Education and Awareness Strategy
Resource Center on GSLEP website
Training module for Social Research
Snow Leopard Genome development
Conservation Monitoring Guidelines
PAWS Summit and Update
Training module on genetics
Initiation of PAWS in Kazakhstan and Tajikistan
Training and Capacity Building g platform
Training module on distribution surveys
Spatial datasets from across the snow leopard range
Interactive IWT database portal established

3. OUTCOME 1: KEY STAKEHOLDERS HAVE SUFFICIENT KNOWLEDGE, CAPACITY AND TOOLS FOR EFFECTIVE TRANSBOUNDARY CONSERVATION OF SNOW LEOPARD ECOSYSTEMS.

Under this outcome stakeholders gained increased understanding of the approaches and tools required to address key gaps for successful transboundary snow leopard population and landscape management and protection. The project provided support to identify knowledge gaps related to designing, planning, implementing and monitoring transboundary landscape management and used the results to inform the development of a knowledge and information sharing mechanism. The range countries were able to access technical and process-oriented information on experiences and lessons and guide the development of landscape management plans, programmes for conservation of transboundary snow leopard populations and international agreements on transboundary PAs. Tools, methods and guidelines to advance the actions in snow leopard transboundary landscape conservation and management were developed. These tools and guidelines took into consideration current guiding principles, case studies on lessons and good practices that existed both at the national level and internationally. These were made available to all range countries involved in transboundary snow leopard conservation. Training materials and a training strategy to control international wildlife trade in snow leopard habitat was also developed. In addition, taking advantage of the existing on-line platforms, training materials and tools were made available through online facilities to allow easy and wider access. The project mapped out the various wildlife law enforcement models existing across the range countries, analyzed these thoroughly, and provided recommendations to improve wildlife crime management effectiveness through a multi-agency approach. The training strategy and materials developed based on this analysis helped improve capacity of wildlife protection agencies in four Central Asian countries. The new model for transboundary cooperation in law enforcement, snow leopard population monitoring and management was piloted in the Sarychat and Northern Tien Shan pilot landscape, but is being implemented across all snow leopard range countries.

3.1 Outcome 1.1: Tools, methods, and guidelines for effective transboundary cooperation developed, tested, and made available to stakeholders.

a) **Illegal Wildlife Trade (IWT):** IWT is one of the main threats to snow leopards. However, the extent or nature of the threat is largely unknown. The illegal wildlife trade database was developed in collaboration with partners such as TRAFFIC, INTERPOL, Environment Investigation Agency (EIA) and Wildlife Protection Society of India (WPSI), to understand this threat better and to generate knowledge to combat it. Information on poaching and trade involving snow leopards is collated in real-time through Artificial Intelligence based web-crawlers that scan the internet, inputs from organizational partners in real-time, and verifications are done through a network of national focal persons in each of the 12 snow leopard range countries. Information is then shared with governments,

enforcement agencies, organizations and researchers. This knowledge and the network is used to combat illegal wildlife trade across the snow leopard habitat. The database can be accessed through the GSLEP website (https://globalsnowleopard.org/capacity-center/illegal-wildlife-data/).

Figure 4 shows the interface of the IWT. People can also share information on the website, request information, and explore trends.

Initial reports indicate that more than 330 incidences comprising of nearly 900 snow leopards (Figure 5). Snow leopard related crimes have so far been detected in 19 countries (Figure 6).

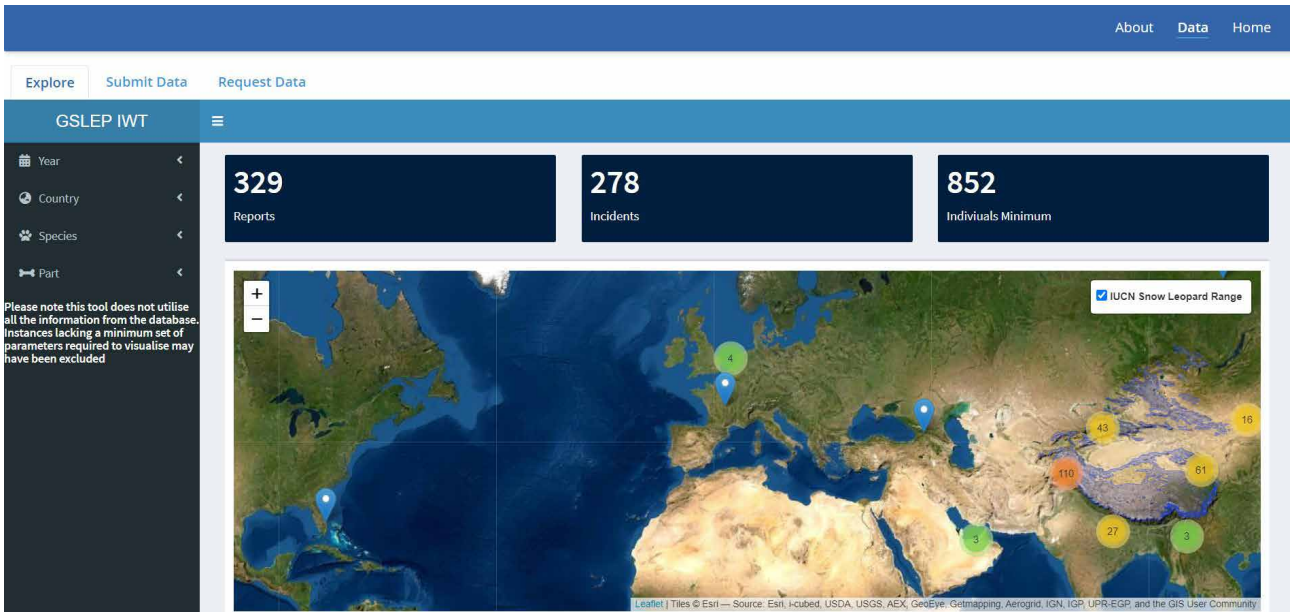


Figure 4: Interface of the IWT webpage.

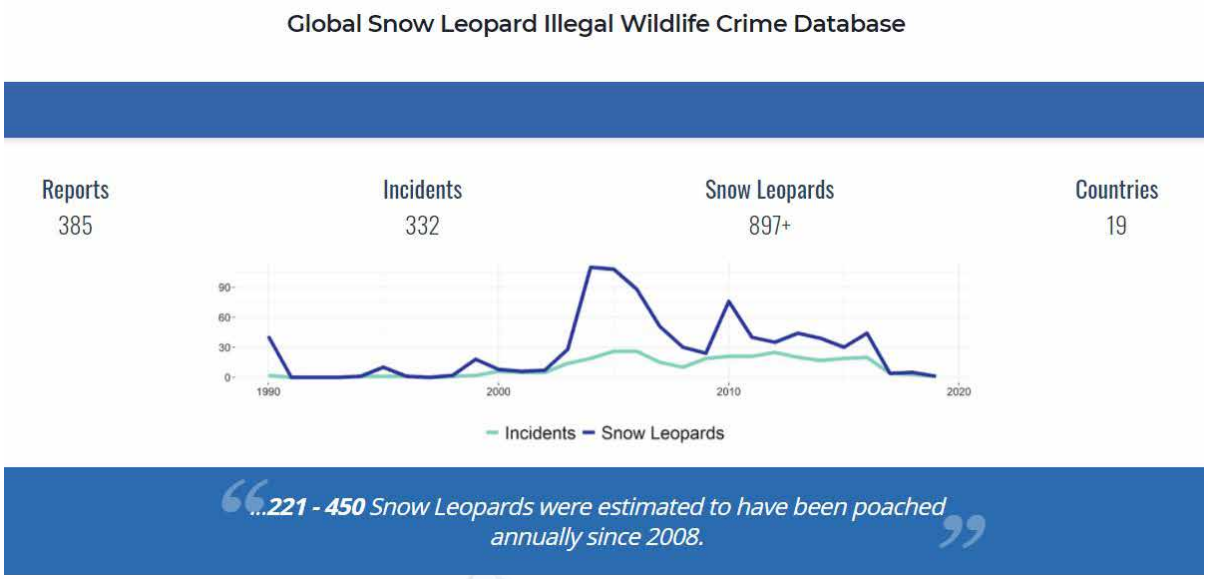


Figure 5: Preliminary analysis of the Illegal Wildlife database

Figure 6: Countries where wildlife crime related to snow leopards has been detected

b) **Analysis of legislations related to IWT:** An extensive review of existing laws and legal frameworks related to wildlife across the snow leopard range countries was conducted. A report was compiled with recommendations on harmonization of the pending data for analysis. The report can be found here: https://globalsnowleopard.org/wp-content/uploads/2021/05/Legal_Wildlife-Protection_SL-.pdf

c) **Ecotourism principles and recommendations:** A practical guide to ecologically and socially conscious tourism was developed for snow leopard landscapes. The guide was released by the Chair of the GSLEP Steering Committee, Honorable Minister of Forest and Environment, Government of Nepal, Mr. Shakti Bahadur Basnet during the International Conference in New Delhi hosted by the Government in 2019. The guide is available on the GSLEP website and accessible to anyone interested in tourism in snow leopard landscapes (link: http://www.globalsnowleopard.org/blog/document/principles-and-recommendations-for-tourism-in-snow-leopard-habitat/). This guide has already been used by organizations to set-up community-based tourism for snow leopard protection. For example the Snow Leopard Foundation-Pakistan have used it as a foundation for informing the Conservation Tourism initiative in Chitral. It was also used as a foundation to develop the online workshop on environmentally and socially responsible tourism, coordinated by GSLEP & Snow Leopard Network, delivered in February 2021 with participation from 12 countries. Figure 7 provides the four broad principles for responsible tourism that have been developed in the guide.

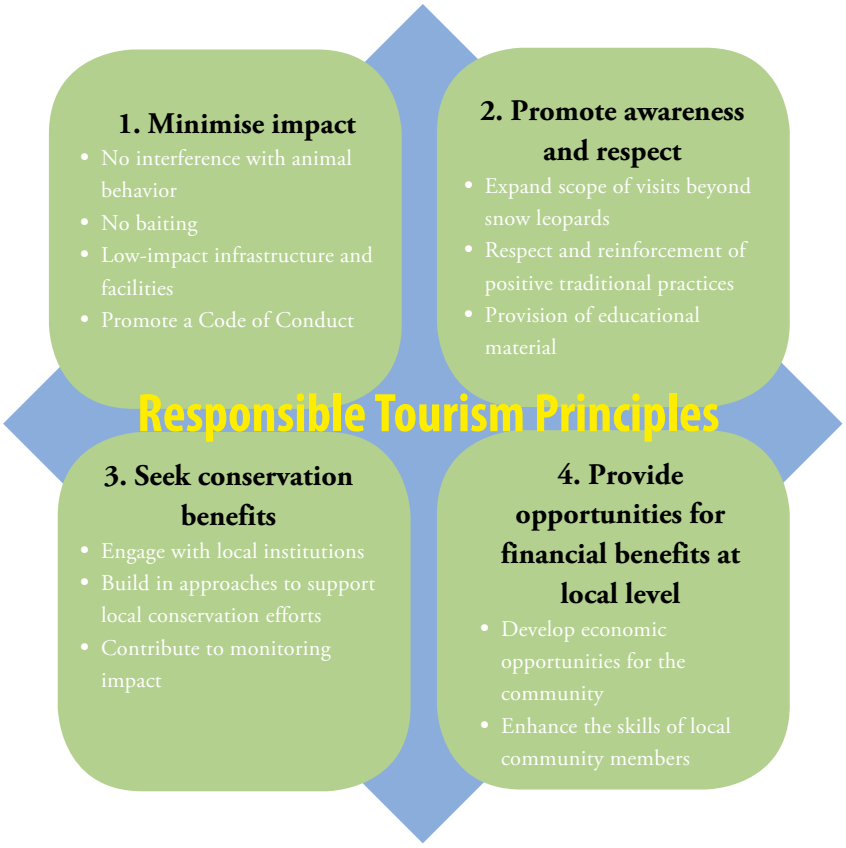


Figure 7: Four principles for ecologically and socially responsible tourism in snow leopard landscapes.

d) **International Forum:** In 2017 in Bishkek, the government endorsed the Bishkek Declaration at the 2nd International Forum on Snow Leopards and Ecosystem Conservation. All 12 range countries endorsed the Bishkek Declaration 2017, reaffirming their commitment to the protection of the snow leopard. Please see section 1.1 for further details.

e) **Steering committee meetings:** Three GSLEP steering committee meetings were organized during the tenure of the project. The meetings were organized in "Issykul, Kyrgyzstan" (2018) and in New Delhi, India, (2019). In 2020, due to the ongoing pandemic, physical distancing measures were necessary and the SCM was held online using state of the art communication tools and meeting platforms (join.globalsnowleopard.org).

The 2018 Steering Committee Meeting was co-hosted by the Government of the Kyrgyz Republic and UNDP Kyrgyzstan. It was attended by all 12 snow leopard range countries. A detailed report of the meeting can be found here: https://globalsnowleopard.org/wp-content/uploads/2021/05/THIRD-STEERING-COMMITTEE-MEETING-REPORT.pdf

The 2019 Steering Committee Meeting was co-hosted by the Government of India and UNDP India. It was attended by 9 of the 12 snow leopard range countries. The meeting can be found here: https://globalsnowleopard.org/wp-content/uploads/2021/05/GSLEP-Meeting-Agenda.pdf

For the 2020 Steering Committee Meeting, a virtual venue was set up (**join.globalsnowleopard.org**) where more than 140 people joined the steering committee meeting. In total, more than 400 delegates participated in the associated events spanning 15 days around the International Snow Leopard Day (October 23). 19 different events were live streamed and made available to the audiences to be seen later. There were 12 country kiosks with detailed country updates about the work done so far for snow leopard conservation. A total of 15 partner kiosks were set up to share the work being done by different GSLEP partner organizations. There were also 21 knowledge kiosks set up to share information about various projects, programs and initiatives being implemented under the GSLEP program.

This virtual venue and videos of events organized during the period were designed to remain active for at least a year after the meeting, thus serving as a virtual exhibition of the work being done across 12 countries by governments and organizational partners for snow leopard conservation.

Figure 8: Participants at the Steering Committee Meeting in Issykul, 2018

Figure 9: Participants at the Steering Committee Meeting in New Delhi, 2019

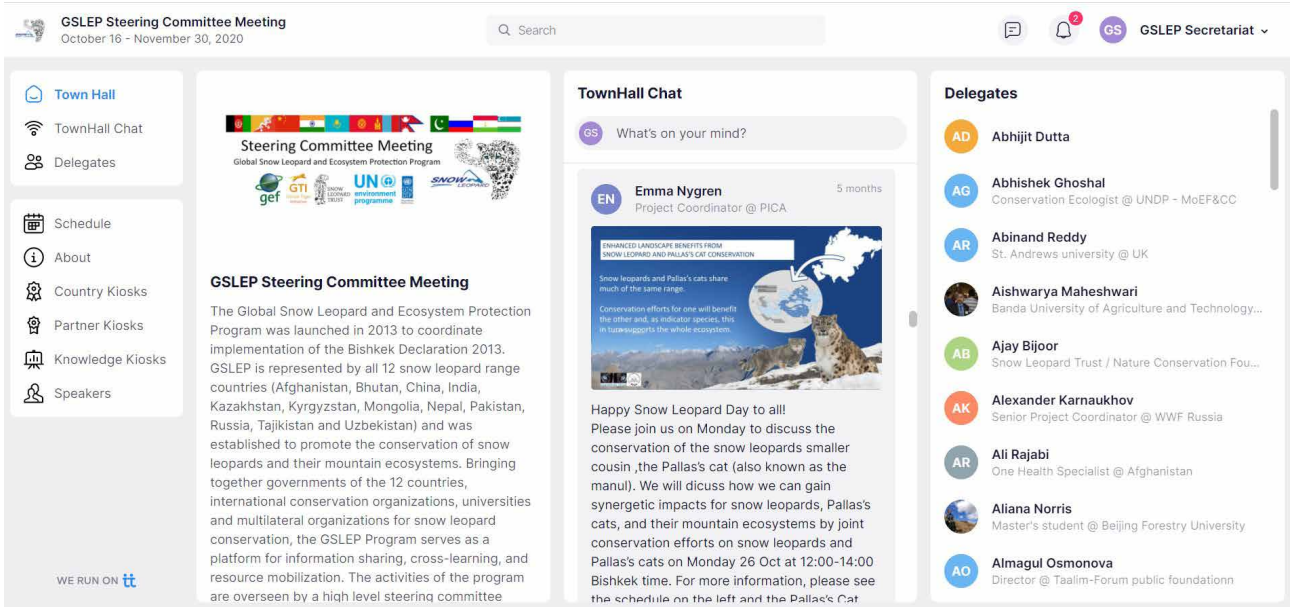


Figure 10: Virtual venue for the 2020 GSLEP steering committee meeting.

f) **Co-organized international conferences:** Several conferences were co-organized from 2017 to 2020 with support from the project. A meeting of the Senior Officials from snow leopard range countries and representatives of the key technical and financial partners of GSLEP program was organized in 2017 to draft the Bishkek Declaration. Additionally, a one day science symposium was co-organized a day before

the International Forum to share updates in research, conservation and adapting to climate change for snow leopard conservation followed by the inception meeting for the Population Assessment of the World's Snow Leopards (PAWS). Organization of the Green Economic Forum, bringing together business leaders from snow leopard range countries, and follow-up events at the US Department of State and Wilson Center, USA, were some of the other noteworthy events co-organized or represented in 2017. In 2018 during the Central Asian meeting on snow leopard conservation in Tashkent, Uzbekistan, an MoU was proposed for a trans-boundary conservation between Uzbekistan, Kazakhstan, Kyrgyzstan, and Tajikistan. In 2018 in Shenzen, best practices in snow leopard research were shared and the roadmap to develop toolkits for the PAWS initiative was prepared. In 2019 in Khujand, Tajikistan, the Trans-boundary action plan for the trans-boundary landscape was prepared. In 2019 in Nur-Sultan, transboundary cooperation was discussed along with the developments in the Population Assessment of the World's Snow Leopards (PAWS) across range countries.

In 2018, the Conservation Asia conference was organized in Bishkek where more than 250 conservationists from more than 45 countries attended. There were several trainings, workshops, and symposia pertaining to biodiversity conservation in Asia, with a special focus on Central Asia. The proceedings of the conference along with the abstracts of papers presented during the conference can be accessed here: https://globalsnowleopard.org/wp-content/uploads/2021/05/Conservation-Asia-2018-Book-of-Abstracts.pdf

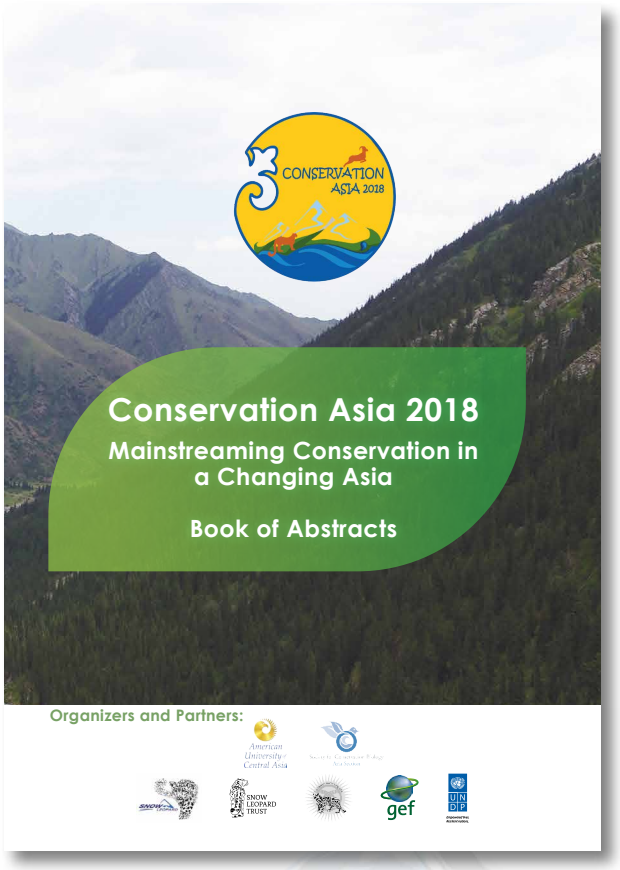


Figure 11: Books of abstracts of the talks presented at Conservation Asia, 2018.

Figure 12: Participants at Conservation Asia, 2018.

g) **Trans-boundary MoU for snow leopard and ecosystem conservation in Central Asia:** A trans-boundary MoU for snow leopard and ecosystem conservation was signed between Kyrgyzstan, Kazakhstan, Uzbekistan, and Tajikistan. The focus landscapes were identified to be West Tien Shan and Alay-Gissar. Final approval for the MoU and action planning for the landscape is pending with some of the range countries.

h) **Climate Smart Management Planning:** Even though its contribution is minimal, the high mountains of Asia are going to be among the worst affected by climate change. Dealing with this requires a wide range of measures, but most importantly adaptation strategies for local communities. The snow leopard survives from -40 to +40 degree Celsius in certain parts of its range. Therefore, it may not be as badly affected due to an increase in one or two degrees of temperature, but will suffer the consequences of how humans respond to climate change related extremities.

Guidelines were developed to provide a toolkit to assist in the preparation of scientific, landscape level, climate smart management plans for snow leopard landscapes. In addition to the general guidelines, a series of advice documents that can help in different stages of the process were also developed. The guidelines and the advice documents can be downloaded from the GSLEP website: https://globalsnowleopard.org/capacity-center/management-planning-toolkit/

Climate smart management plans have so far been prepared for snow leopard landscapes in Afghanistan, Bhutan, India, Kyrgyzstan, Mongolia, Nepal, and Pakistan.

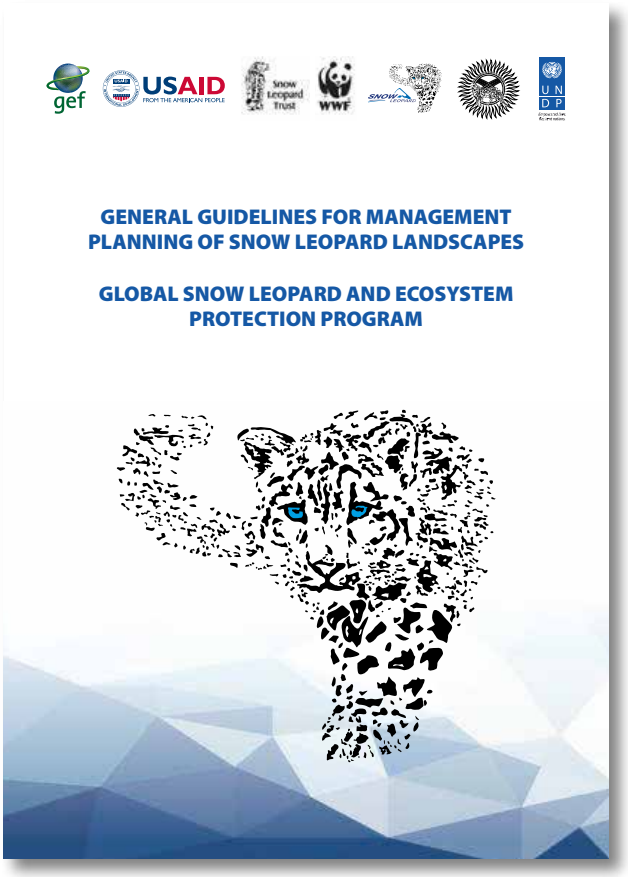


Figure 13: Guidelines for management planning for snow leopard landscapes

i) **Resource centre on GSLEP website:** An interactive resource centre has been established on the GSLEP website with downloadable resources, datasets, and manuals. The resource centre presently has spatial datasets, interactive illegal wildlife trade data portal, PAWS training manuals and modules, and a live help-desk for practitioners (link: https://globalsnowleopard.org/resource-center/).

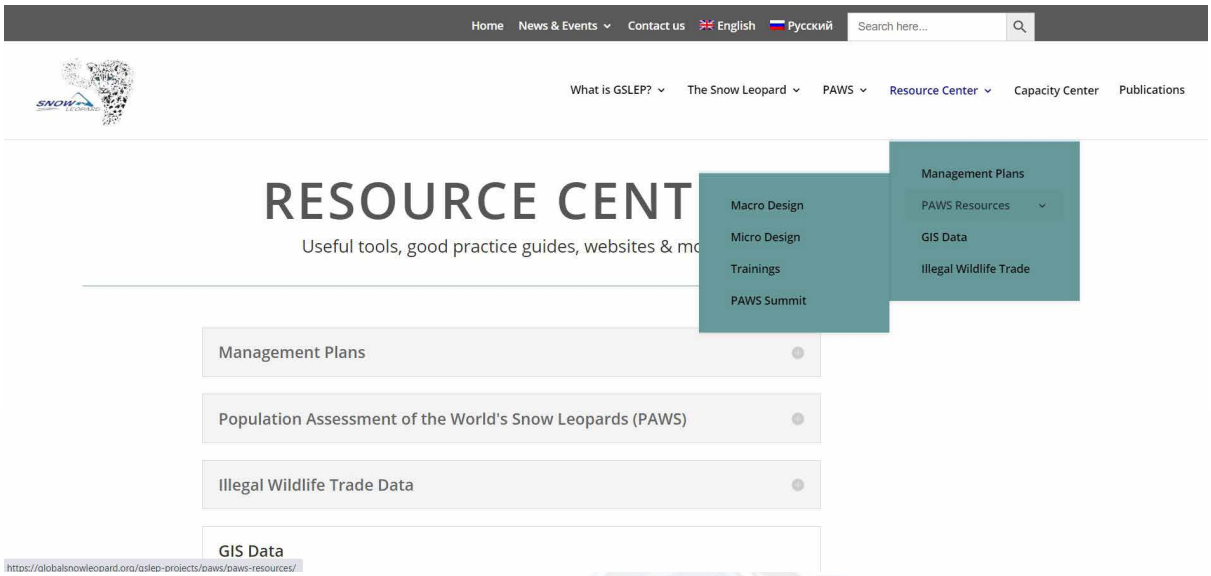


Figure 14: Resource centre on the GSLEP website

j) **Advice paper for policy recommendations:** One of the primary roles of the GSLEP program is to respond to the needs from the range countries by engaging regional and global experts. Responding to one such need, based on several instances from different parts of the snow leopard range, a team of experts were brought together to develop an advice paper to deal with unusual encounters with snow leopards. The paper has already been translated into Russian, Chinese and Hindi, and is being translated into Urdu and Mongolian. The paper has been shared with all snow leopard range countries so it can be transformed into actionable policy. So far, Kyrgyzstan, China, India and Pakistan have expressed their interest in transforming this advisory into policy. The English version of the policy recommendation can be accessed here: https://globalsnowleopard.org/wp-content/uploads/2020/08/Policy-Recommendation-10_Eng.pdf.

k) **Education and Awareness Strategy:** Education and awareness about snow leopards is crucial, especially as people and biodiversity share space across the range. An education strategy for snow leopard landscapes was developed focusing on progressive learning modules that are informed by science, locally relevant, gender sensitive and culturally grounded. A large number of educational activities and exercises have also been developed and are being rolled out to continue engagement with the future citizens of the world. The education and awareness strategy document can be accessed here: https://globalsnowleopard.org/wp-content/uploads/2020/09/Education-Strategy.pdf. Activities and exercises developed under this program are accessible on this dynamic link that will continue to be populated with new material in due course of time: https://www.snowleopard.org/education/

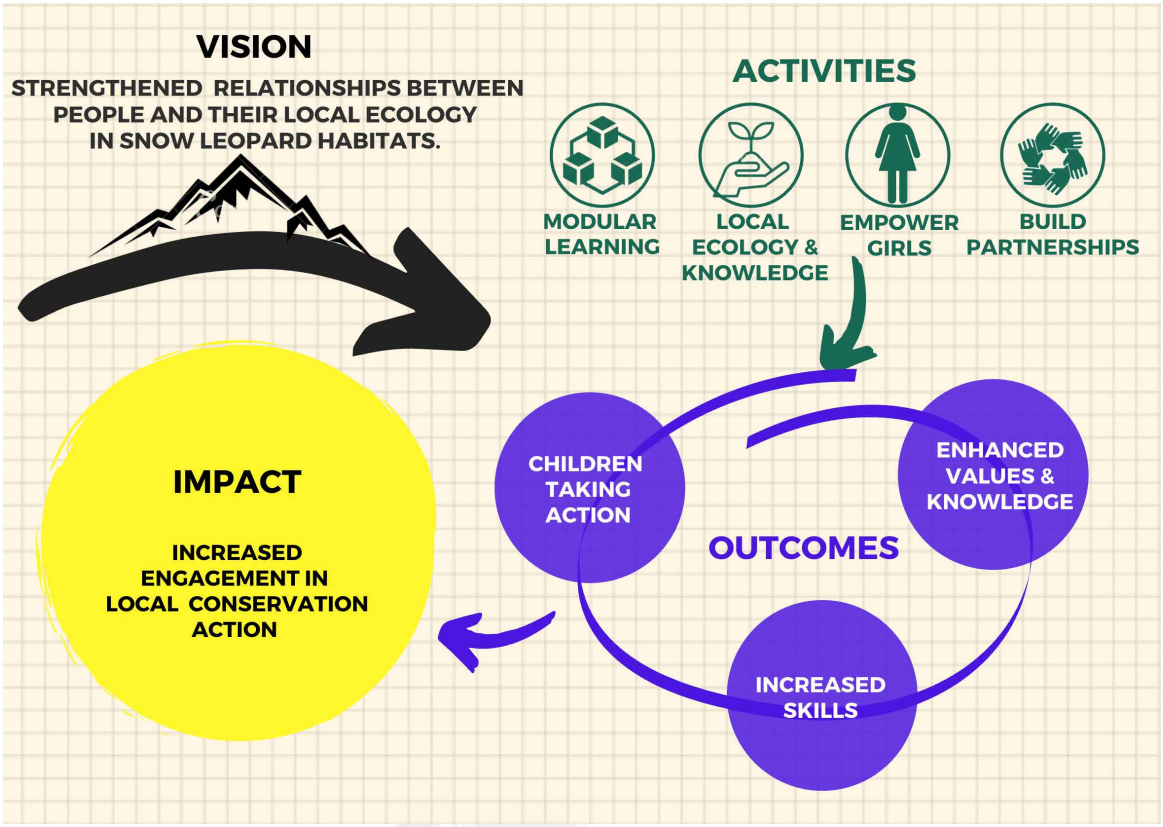


Figure 15: The theory of change outlined in the education and awareness document.

l) **Conservation Monitoring Guideline:** For conservation efforts to be effective and efficient, it is important that the main conservation threats to the species or ecosystem in the area of interest be understood well. Based on that understanding, conservation targets can be created, and conservation initiatives designed to address the threats and to meet desired conservation targets. Monitoring programs, apart from helping evaluate the impact of conservation initiatives, should also constantly scrutinize the nature and intensity of threats.

A monitoring framework based on Threats Reduction Analysis (TRA) was created that involves developing a good understanding of threats to conservation of species or ecosystems in an area and ranking each threat based on the urgency with which it needs to be addressed, the area or spatial extent that it impacts, and the intensity of damage it can cause. The guidelines are currently under peer review and will be published on the GSLEP website soon after.

3.2 Output 1.2: Training materials and methods developed and disseminated, including through an on-line platform

Lack of capacity to study, monitor, conserve and educate has been one of the biggest challenges in conserving snow leopards. During this project's tenure, several state of the art training toolkits were developed, piloted and disseminated.

a) **Wildlife Crime Scene Investigation Training:** Trainers from INTERPOL, with support from various other donor partners such as DEFRA and UK Embassy in Kyrgyzstan, trained a team of 12 protected area rangers in the Kyrgyz Republic to become trainers to deliver the Wildlife Crime Scene Investigation training program. So far, several protected area rangers have been trained in investigating wildlife crime across the country, and the program is likely to continue with support from local organizations.

Figure 16: Personnel undergoing training in wildlife crime investigation

b) **Symposium on integrated approach to conservation in snow leopard landscapes:** A symposium that was co-organized during the Conservation Asia International Conference on an integrated approach to conservation in snow leopard landscapes facilitated the cross-fertilization of ideas from India and Central Asia. A framework to foster knowledge-based, integrated conservation through stakeholder participation was prepared and presented at the symposium.

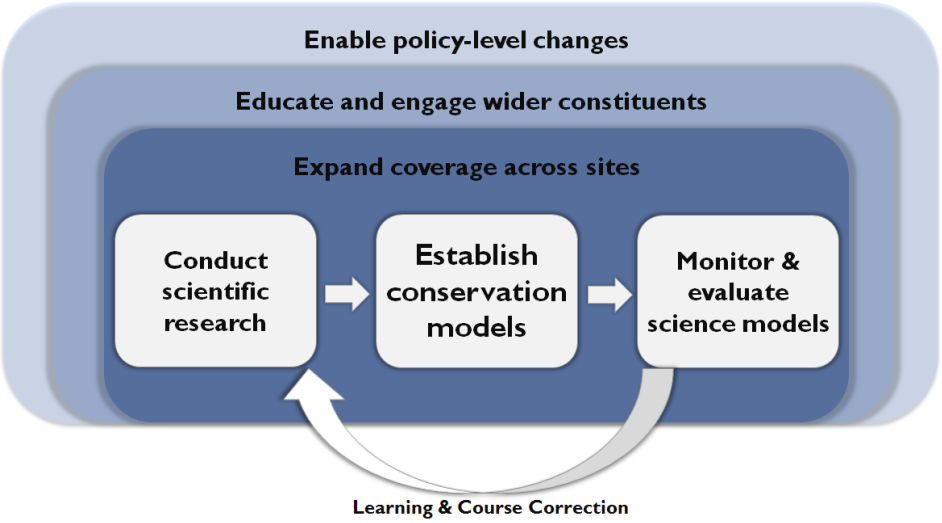


Figure 17: A multi-pronged approach to research and conservation presented at the symposium

c) **Workshop on illegal wildlife trade database:** A workshop was organized in collaboration with INTERPOL, Environment Impact Agency, Wildlife Protection Society of India, and Snow Leopard Trust based on their experiences in dealing with various elements of the database on illegal wildlife trade. The workshop allowed synthesis and development of the structure of the database, identifying processes that facilitate sharing and collating information, and mechanisms that could allow the database to become useful for practitioners.

Figure 18: Illegal Wildlife Trade Workshop being conducted

d) **Communicating Conservation:** Communicating Conservation to the public and telling conservation stories is becoming increasingly important as a tool to raise awareness, influence policy and effect conservation action on the ground. A workshop was organized on the need and methods of telling compelling conservation stories. Experts on communication and conservation communication shared their experiences with the participants through examples and helped build skills through hands-on exercises. The entire workshop was live-streamed for audiences that could not attend in person, and the recording is secured for future use.

Figure 19: Workshop on communicating conservation

e) **Partners Training Programme:** The PARTNERS Principles are eight principles for successful community based conservation that are published as a book and also as a scientific article in an international peer reviewed journal. To disseminate the learnings of these principles to a wider audience, a workshop has been developed for conservation practitioners interested in engaging with community-based conservation. The workshop was further developed into a toolkit for trainers (Figure 20) and an online training toolkit for practitioners (link: https://www.snowleopard.org/partners-principles/) .

f) Our team has conducted several training workshops across the range including a pilot that allowed improvement in the guideline and the workshop program. In October 2019, 17 conservationists from 5 snow leopard range countries including Pakistan, India, China, Kyrgyzstan, China and beyond were trained as trainers in the best practices for community-based conservation. A number of these participants have over 15 years of experience in snow leopard conservation. The training took place over 4 days. Participants shared stories and experiences of best practices, challenges and practical solutions to address these challenges. The training also focused on providing

facilitation and teaching skills so that the course could be delivered in an effective and fun way. The goal is for these trainers to carry out trainings to bring skills and knowledge for engaging local communities in conservation to hundreds of frontline field staff throughout the snow leopard range. So far more than 100 practitioners have been trained in the PARTNERS principles for community conservation.

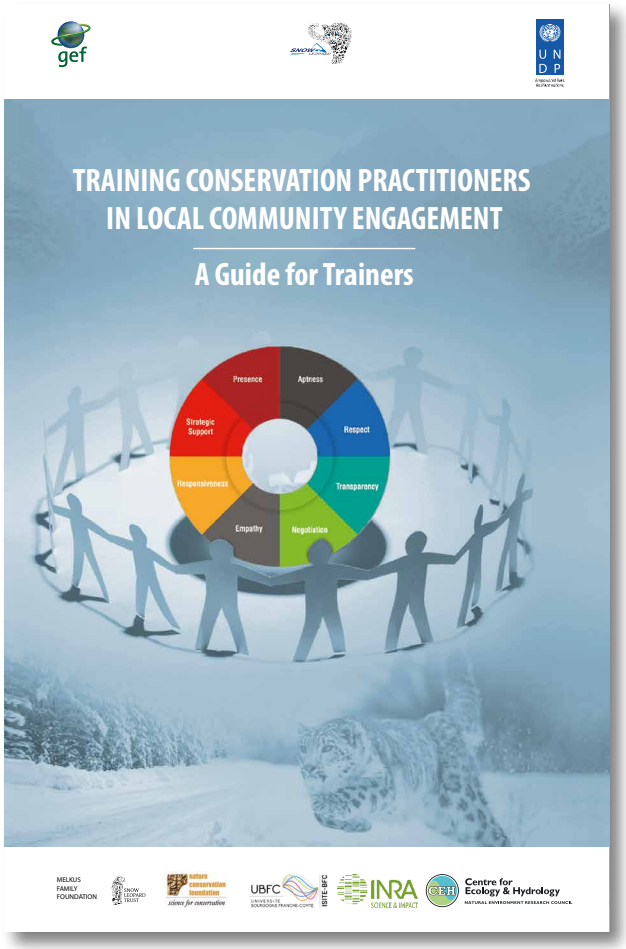


Figure 20: Trainers' guide for training conservation practitioners in local community engagement

g) **Training Module on Species Distribution:** A training module was developed with support from Proteus, a New Zealand based consulting organization, to design and analyze species distribution surveys using an occupancy framework that addresses the challenges of imperfect detection. The four-days' workshop was conducted in Mongolia and China between 2018–2019 including over 50 researchers and conservationists.

In Mongolia, following the initial workshop, the team applied the skills they learnt and assessed the snow leopard distribution across the entire country using sign surveys and occupancy modelling. This survey covered nearly half a million square kilometers with the collaboration of several organizations and the national Government. It has produced the first robust distribution map of snow leopards for Mongolia.

The in person workshop was developed further into an online workshop and delivered to 35 snow leopard practitioners in December 2020. The videos, presentations and

R scripts used in the workshop can be accessed here: https://snowleopardnetwork.org/module-6-distribution-surveys/

Figure 21: Piloting the training module on species distribution

h) **Web-based resource centre for PAWS:** Several resources have been created and made available for the Population Assessment of the World's Snow Leopards (PAWS) to assist partners and practitioners in the field to collect, organize and analyse data on snow leopard population estimation. These resources include PAWS guidelines, training material and videos on spatial capture recapture analysis, snow leopard distribution surveys and prey population estimation. Additionally, cheat sheets have been prepared to prepare and analyse data using secr package in R, shiny apps (web-based applications) have been developed to allocate survey effort based on Halton's Iterative Partitioning principles at the landscape level, and selection of sites to set up cameras within a study area (camera-trap design), and snow leopard identification training and evaluation. Additionally, mini-manuals have been prepared and shared to help set up camera traps, sample scats or swabs for analysis using genomic data, distribution surveys and data management (link: https://globalsnowleopard.org/gslep-projects/paws/)

Examples of resources developed:

- An online training tool has been set up where observers can practice their skills in identifying snow leopards and evaluate their risk of making different types of error. We recommend that observers practice individual identification with this training tool and report their errors after a set of at least n=20 identifications.

- With help from Microsoft, we have developed an Artificial Intelligence based application to filter animals of interest from a large number of camera trap pictures. The tool simply requires you to upload a file detailing camera trap names, locations, and operational dates; and then use an upload client to schedule upload of several thousand snow leopard images. Once uploaded, you schedule the job which is run at a super-computer with several hundred processors that goes through each image and creates a new folder of images that contain snow leopards. These images are augmented with meta data and can be easily fine-tuned to run more sophisticated analyses.

- **Optimal Layout of Camera traps:** Recent studies have indicated that for spatial capture recapture, the optimal trap layout is not one where cameras (or transects) are laid out uniformly. Instead, at a certain level clustering of traps is considered to provide optimal results. A new guidance is developed by University of Massachusetts, whereas a detailed procedural guidance has been developed to provide hands on simulation opportunities to field teams to decide where to set up cameras to get the most valuable data, given predictive density surfaces and covariates

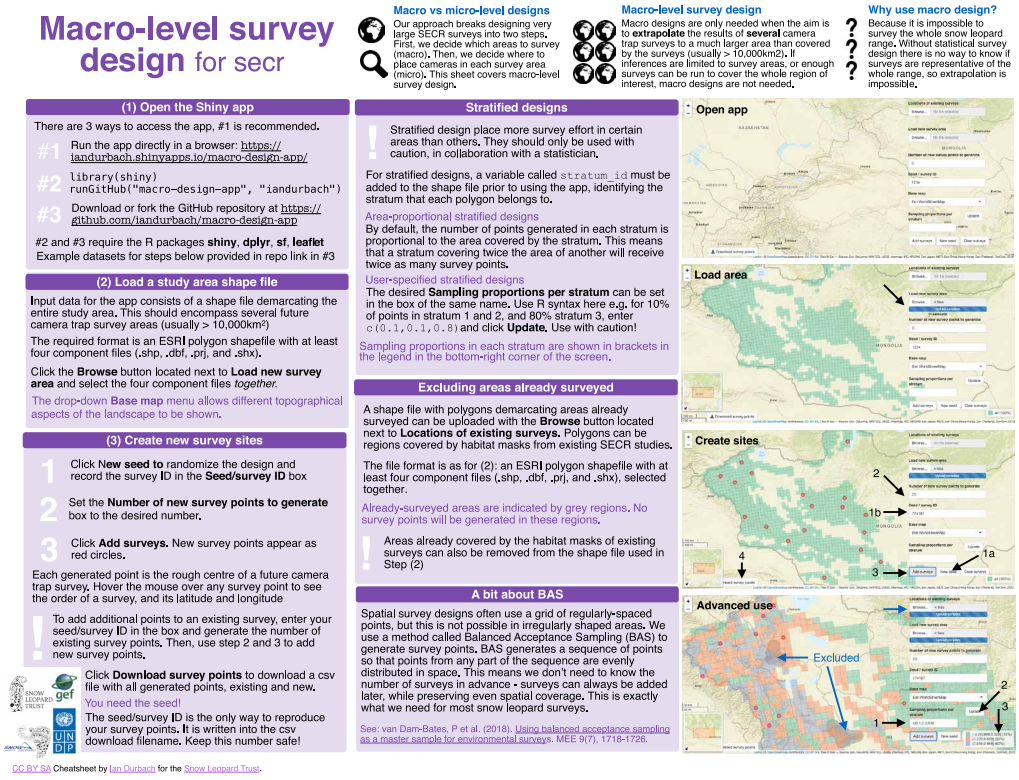


Figure 22: Macro-level survey design tool for planning population assessment of snow leopards in large landscapes

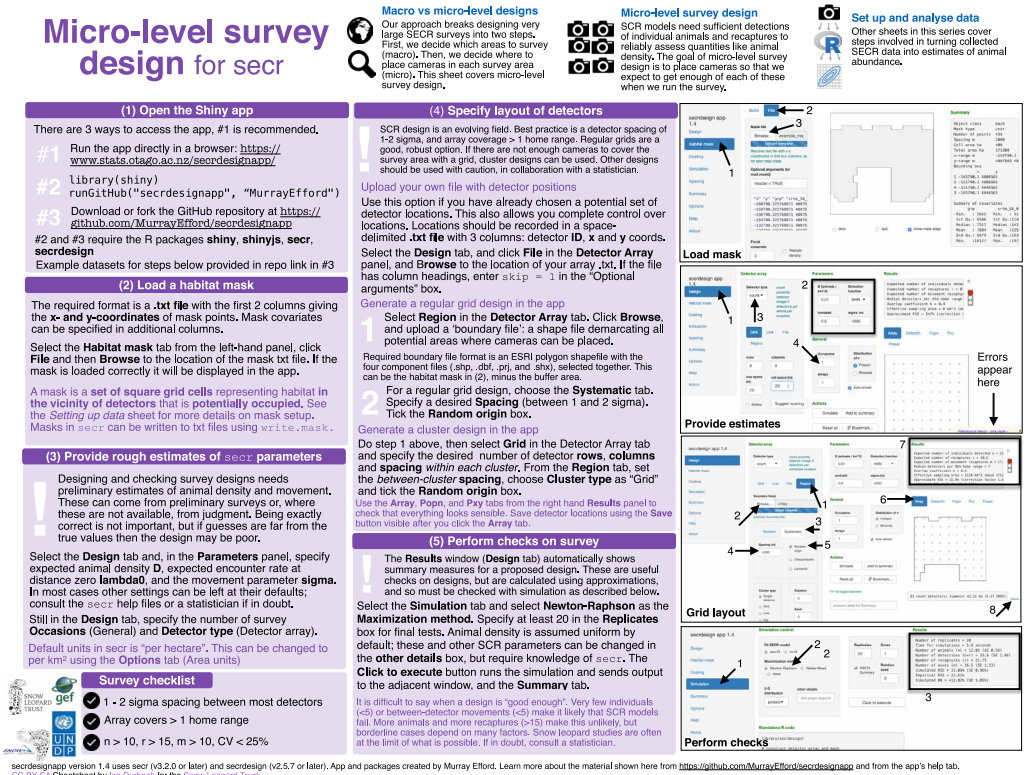


Figure 23: Micro-level survey design tool for planning camera trapping surveys for spatial capture-recapture

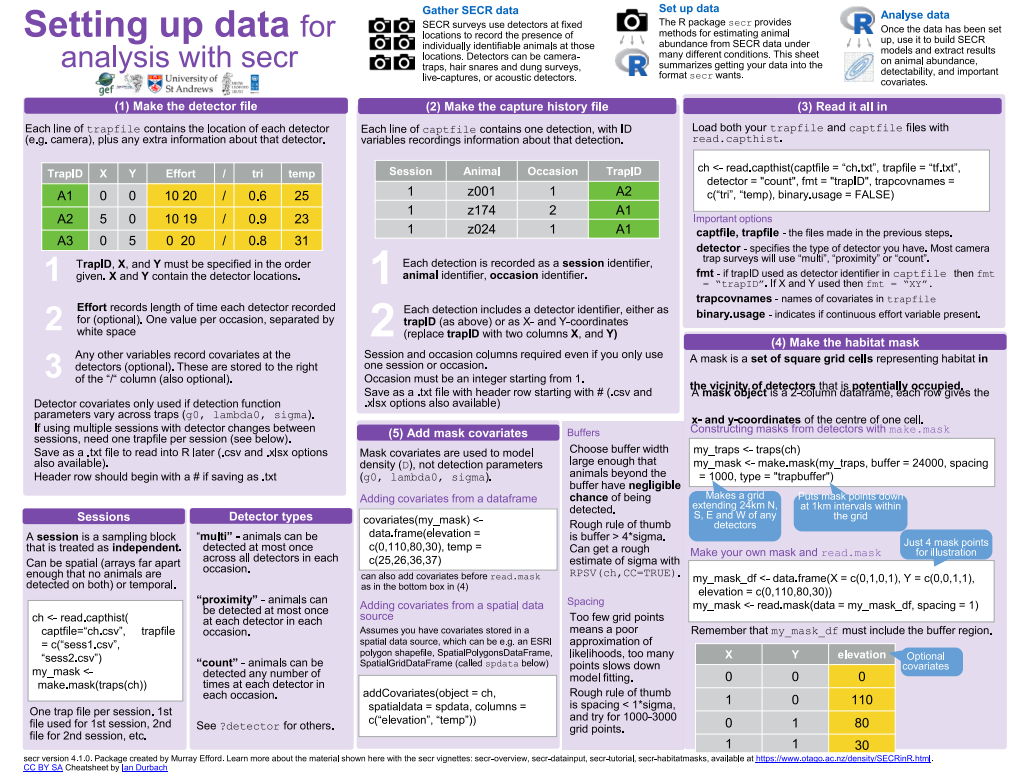


Figure 24: Cheat sheet to organize data for spatial capture-recapture analysis

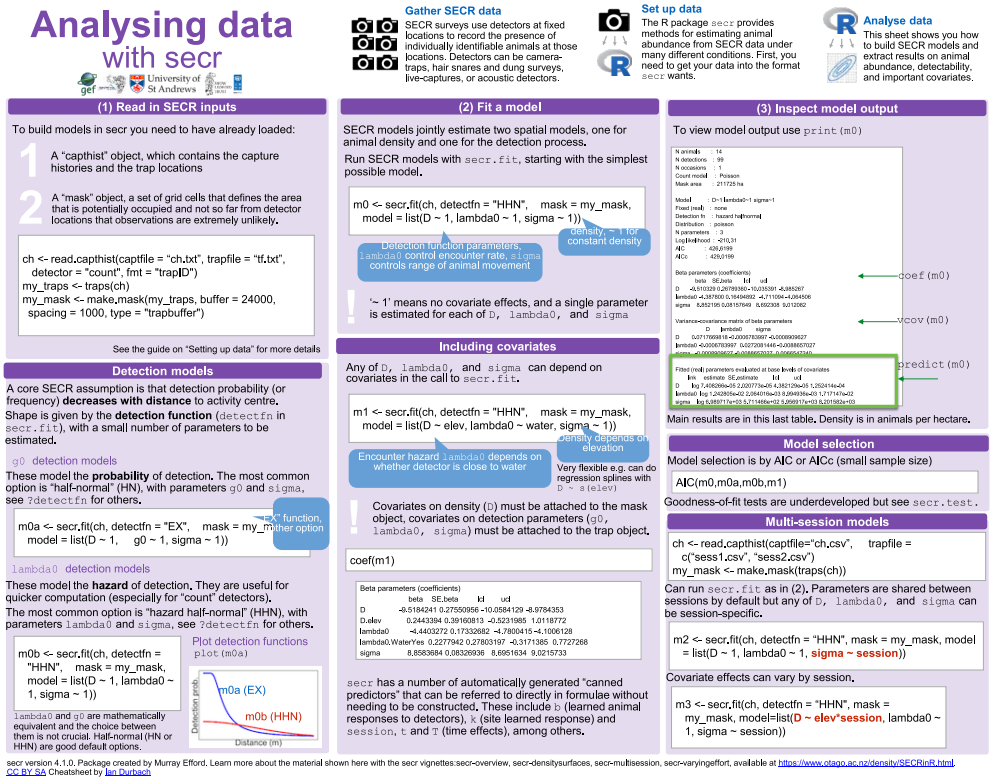


Figure 25: Cheat sheet to analyze data using spatial capture-recapture analysis

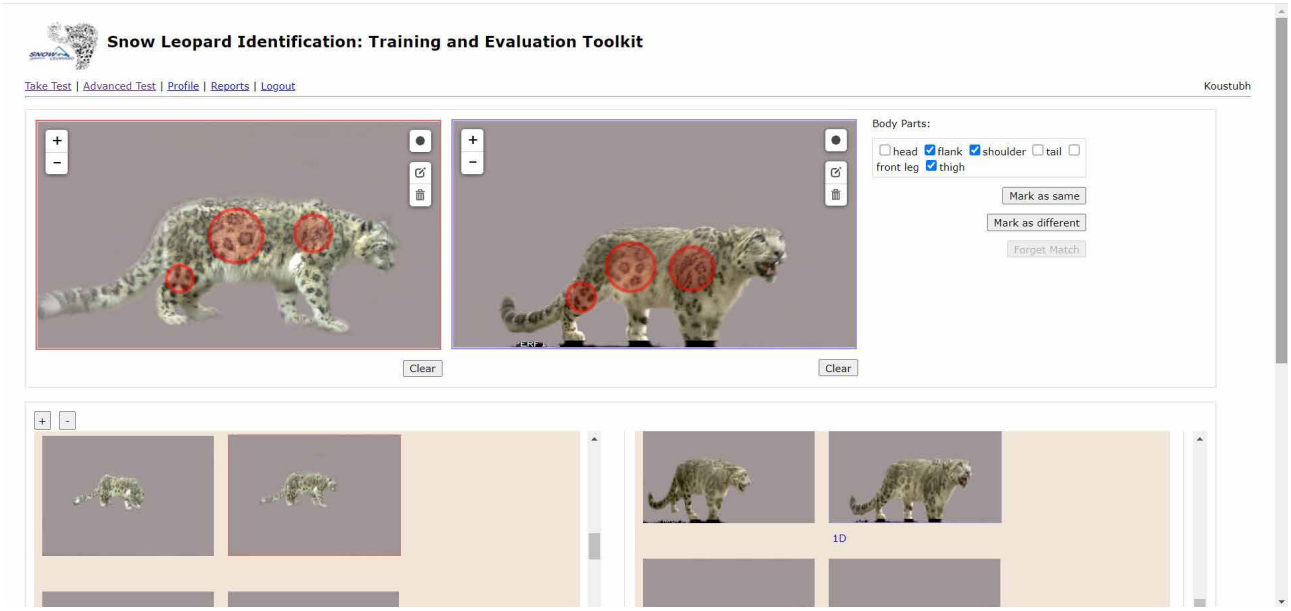


Figure 26: Tool for training and evaluating skills in identifying individual snow leopards based on rosette patterns.

i) Training and Capacity Building platform: Online training content worth more than 50 hours was developed and delivered on camera trap surveys, ungulate surveys, community conservation, social research, genetics, and distribution surveys. So far, more than 100 participants have participated in these training workshops from across

the world. The training modules, including videos, presentations, R scripts and other relevant material can be accessed here: https://snowleopardnetwork.org/resource-centre/trainings/

3.3 Output 1.3: Effective enforcement mechanisms developed and introduced to enforcement agencies

Enforcement is a crucial aspect of snow leopard conservation which ensures that laws are followed on-ground. For effective enforcement, it is essential that the frontline staff are adequately trained and have access to the latest tools. As a part of this project, several tools and operational modalities were reviewed and critiqued to assist field personnel from Central Asia in controlling poaching and illegal wildlife trade.

a) **CITES training workshop:** A CITES training workshop was co-organized for managers, decision makers and frontline staff from Central Asia. The purpose of the workshop was to train staff in addressing the threat of poaching and trade of snow leopards. They were also familiarized with national and international regulations related to illegal snow leopard trade.

b) **Kyrgyz NEST:** A workshop was organized to develop a taskforce that could facilitate information sharing and the formation of the National Environment Security Taskforce in the Kyrgyz Republic.

Figure 27: Workshop to facilitate formation of NEST in Kyrgyzstan

c) **SMART patrolling in Snow Leopard Habitats:** The Spatial Monitoring And Reporting Tool (SMART) is a toolkit that assists wildlife managers to better monitor, evaluate and

adaptively manage patrolling activities. Representatives from snow leopard landscapes were trained in SMART patrolling techniques with the goal of evaluating their feasibility in the Central Asian landscapes. The approach was modified to address the nuances of snow leopard landscapes and included patrolling using technological innovations such as drones.

Figure 28: Trainers and representatives from snow leopard range countries at the SMART patrolling evaluation workshop

4. OUTCOME 2: GLOBAL MONITORING FRAMEWORK DEVELOPED FOR SNOW LEOPARD ECOSYSTEMS, DEMONSTRATED AND ADOPTED BY RANGE STATES

This outcome aimed to support the development of appropriate national and global monitoring frameworks that ensured harmonised monitoring mechanisms across the snow leopard range countries. It included snow leopards, their prey and their mountain ecosystems, including the key threats and socio-economic parameters in snow leopard landscapes. The monitoring framework was envisaged to assess and monitor success of snow leopard conservation plans at regional, national and global levels via a set of standard indicators. The frameworks were supported by the development of spatial databases, and were tested in pilot landscapes. All tools have been made available to range countries in the region to assist national and regional/global management decisions to address landscape level stressors and guide strategic planning and evaluation of snow leopard conservation strategies, at different levels. Additionally, the developed standard monitoring framework and indicators were introduced to all snow leopard range countries for approval and integration into national monitoring systems.

4.1 Outcome 2.1: Common monitoring indicators and methods for snow leopard landscapes and populations developed, tested and disseminated

Arriving at reliable estimates for snow leopard populations is difficult due to a lack of unified methods, protocols and tools. Further, spatial datasets and landscape management measures are missing, making it an uphill task for practitioners to estimate snow leopard numbers with any confidence. Until recently, scientists had data on snow leopard abundance from less than 2% of the global snow leopard range. This data was also biased toward the best snow leopard habitats having been sampled, which limited its ability to project snow leopard abundance from unsampled parts of the range.

One of the most significant outcomes of this project has been developing tools and approaches for assessing the world's snow leopard population. Through the Population Assessment of the World's Snow Leopards (PAWS), these tools are helping countries and NGO partners estimate snow leopard populations from specific sites as well as large landscapes. The number of sites where scientifically robust and statistically appropriate methods have been implemented or are planned to be implemented has now gone up from less than 2% to 7-8%. For a 2 million km^2 species distribution range, this means an increase in coverage to 130,000 km^2. Statistically, we are still short of the required sampling effort to estimate national, regional and global abundance estimates, but countries have imbibed PAWS into their national action plans. For instance Mongolia has used a multi-organizational collaboration with the Government to conduct nation-wide distribution and abundance surveys, Kyrgyzstan now has its own PASK, India has SPAI, Pakistan has PSLEP, Bhutan has its national snow leopard count, and so on.

Apart from developing easy to use manuals and tool-kits that are going to be available in both English and Russian, we have also initiated one-on-one support for PAWS surveys to GSLEP landscapes in all the snow leopard range countries. PAWS surveys are also collating information about existing and upcoming threats and identifying population hotspots. Therefore they will play a key role in identifying landscapes for future conservation investment.

The **PAWS action plan** was developed, shared and discussed with range countries and NGO partners before getting approved. The action plan identifies a scientific advisory panel that helped develop PAWS guidelines; Governments and partner organizations across the range ensure the on-ground implementation of PAWS. The GSLEP steering committee provides support and oversight and reviews the status of PAWS every year during the SCM. At the country level, PAWS is implemented through collaborations, fund-raising, training and capacity building, data collection and analysis, and scientific and outreach outputs. Figure 27 provides a structure for the general PAWS action plan.

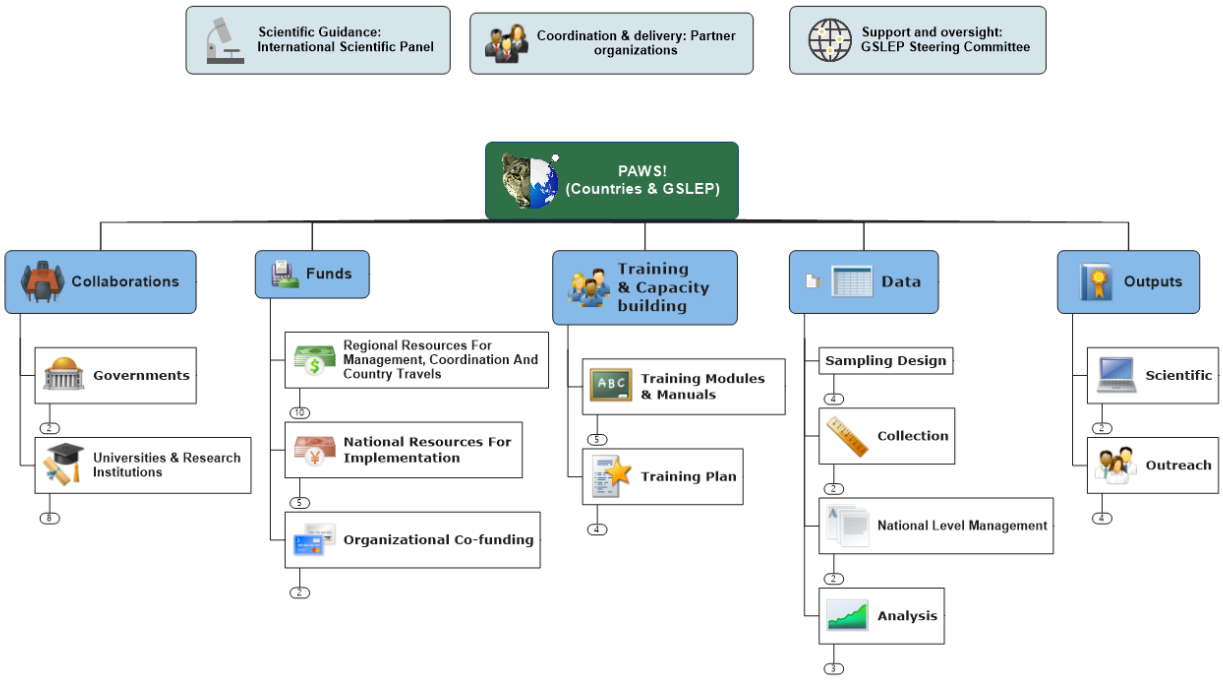


Figure 29: Structure for the PAWS action plan

The **PAWS Scientific and Advisory Panel** is a group of 11 highly qualified statistical ecologists, snow leopard ecologists and political positions identified by the GSLEP Steering Committee. The panel's term is for a period of 2 years, following which the panel's membership is reviewed and reconstituted. Members may be reinvited or replaced depending on their other commitments and feasibility to contribute to the PAWS process. The present members of the Panel are:

Chairs:
Prof. David Borchers, UK
Prof. Lu Zhi, China

Members:
Mr. Ashiq Ahmad Khan, Pakistan
Dr. Charudutt Mishra, India
Dr. Chris Sutherland, USA
Prof. James Nichols, USA
Prof. Sandro Lovari, Italy
Dr. Som Ale, Nepal
Dr. Tom McCarthy, USA
Mr. Wali Modaqiq, Afghanistan
Dr. Darryl Mackenzie, New Zealand

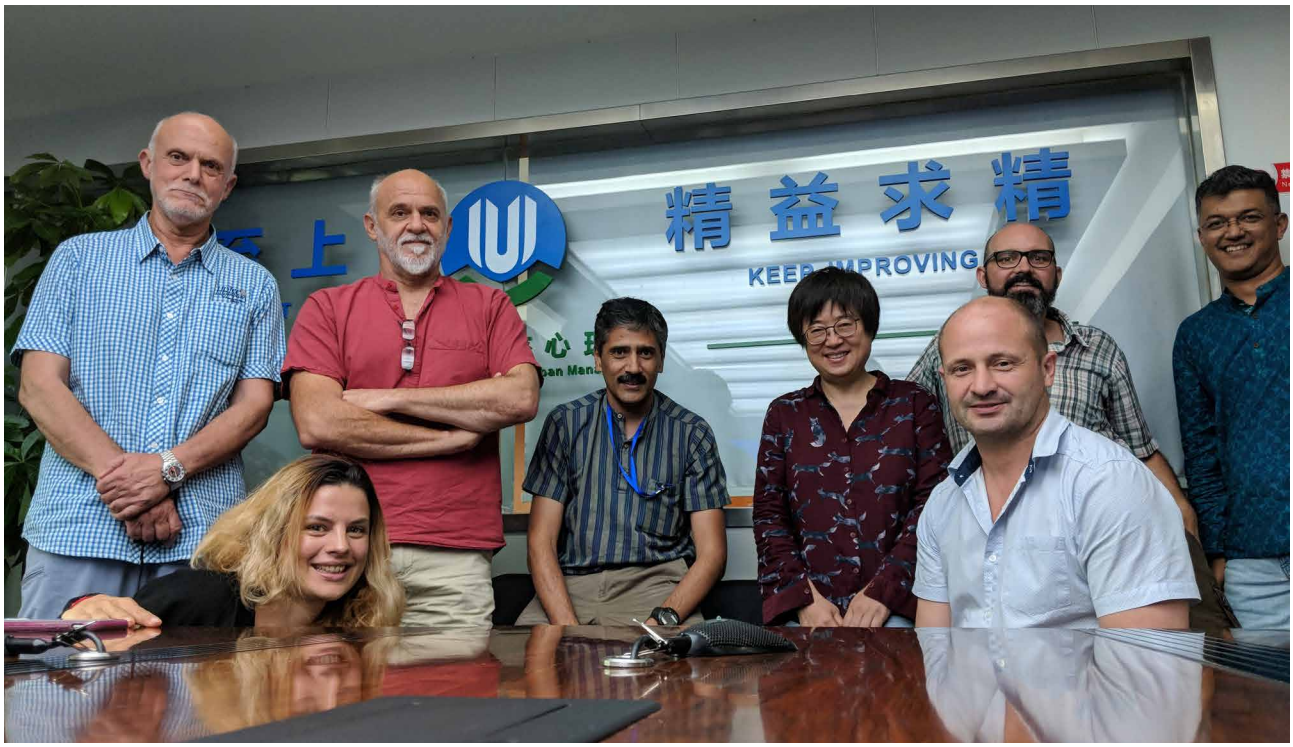


Figure 30: Meeting of the members of the Scientific and Advisory Panel of PAWS

To achieve its goals, a **two-stage process** was identified by the Scientific and Advisory Panel and approved by the GSLEP Steering Committee. More information on the PAWS process can be found here: https://globalsnowleopard.org/wp-content/uploads/2019/05/PAWS-process-outline.pdf

The **primary two stages**, as identified by the technical oversight panel are:

1) **Assessing snow leopard distribution as a function of one or more habitat covariates while addressing imperfect detection**
   - Method(s): **Site occupancy modeling**
   - Data required: Interview, sign survey and camera trapping
   - Sampling unit: 225 km^2 grid cells (15 km x 15 km) that can potentially be represented through a specific sampling effort

- Workshop needs: Up to five workshops focused on planning, designing, field training, pilot surveys feedback, and analysis
- HR needs: Field teams to collect data in the field, research support to coordinate and monitor design, implementation and analysis
- Indicative Timelines: For each survey, 1 month for planning and logistics, 1 month for pilot data collection, 15 days for pilot data analysis, 1–2 months for main data collection, 1–2 months for analysis across a study area covering 10,000–50,000 km^2
- Outcomes: A surface denoting probability of site use by snow leopards

2) Estimating abundance as a function of heterogeneous density across space

- Method(s): **Spatial Capture Recapture modeling**
- Data required: Camera trapping or genetic sampling
- Sampling unit: 500–5000 km^2 of a coverage with clusters of camera traps or genetic sampling transects
- Workshop needs: Up to six workshops focused on planning, field training, data collection and organization, analysis, feedback and course correction, and stratification and selection of sites
- HR needs: Field teams to install cameras or collect genetic data in the field, research support to coordinate and monitor design, implementation and analysis
- Indicative Timelines: For each survey, 1 month for planning and logistics, 1 month for setting up cameras or collecting genetic data, 2 months for data collection and organization (after at least 3 months of field data collection in case of camera traps), and 2 months for analysis. The intensive sampling may need to be repeated in several sites depending on the stratification (stage1), representation and desired level of precision.
- Outcomes: Snow leopard density and abundance estimates

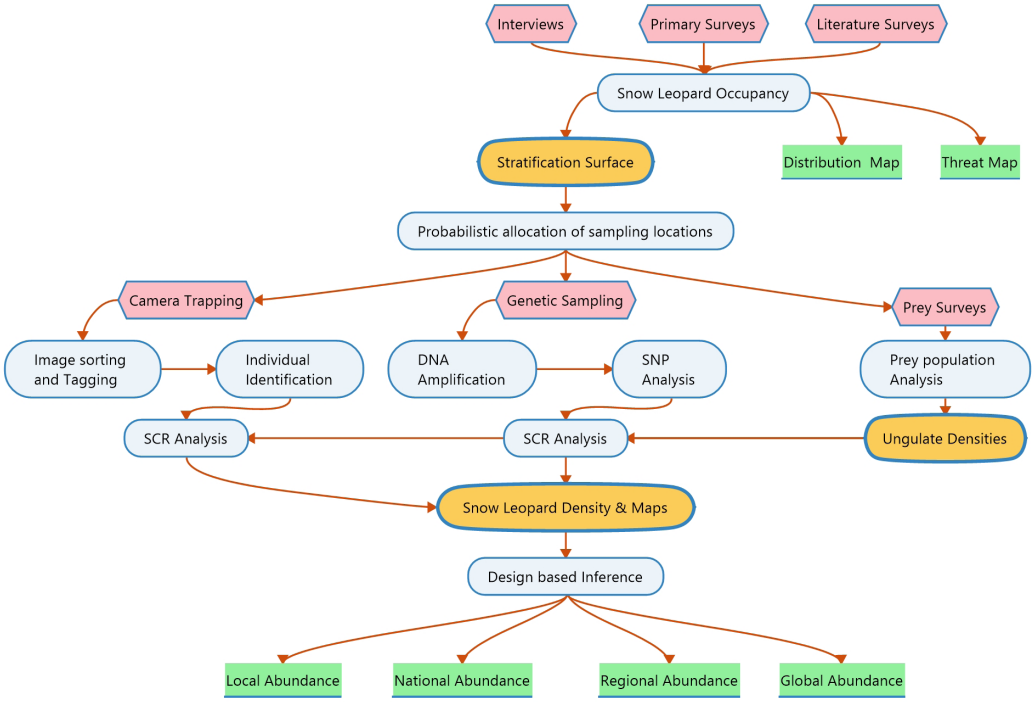


Figure 31: The PAWS workflow

The **PAWS guidelines** were prepared with the inputs of 25 experts for a wide audience from technical teams to senior bureaucrats. The guidelines follow three key steps for easy of use: Planning, Sampling Design, and Data collection, management and analysis. The complete guidelines can be accessed here: https://globalsnowleopard.org/wp-content/uploads/2020/08/PAWS-guidelines-2020.pdf

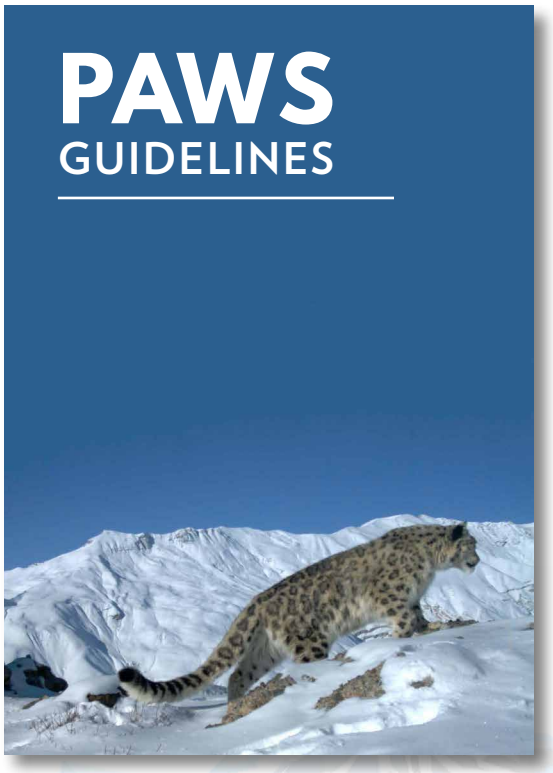


Figure 32: PAWS guidelines

The availability of wild ungulate prey is one of the most important determinants of large carnivore density. A **Prey Monitoring manual** which describes the Double Observer method for monitoring prey populations was published using the latest scientific information. The Double observer method is considered to be particularly useful in mountainous snow leopard habitat. The manual provides a practical, step-by-step guidance on how to plan, implement and analyze double observer surveys to estimate ungulate population abundance. The full manual can be accessed here: https://globalsnowleopard.org/capacity-center/population-assessment-distribution/

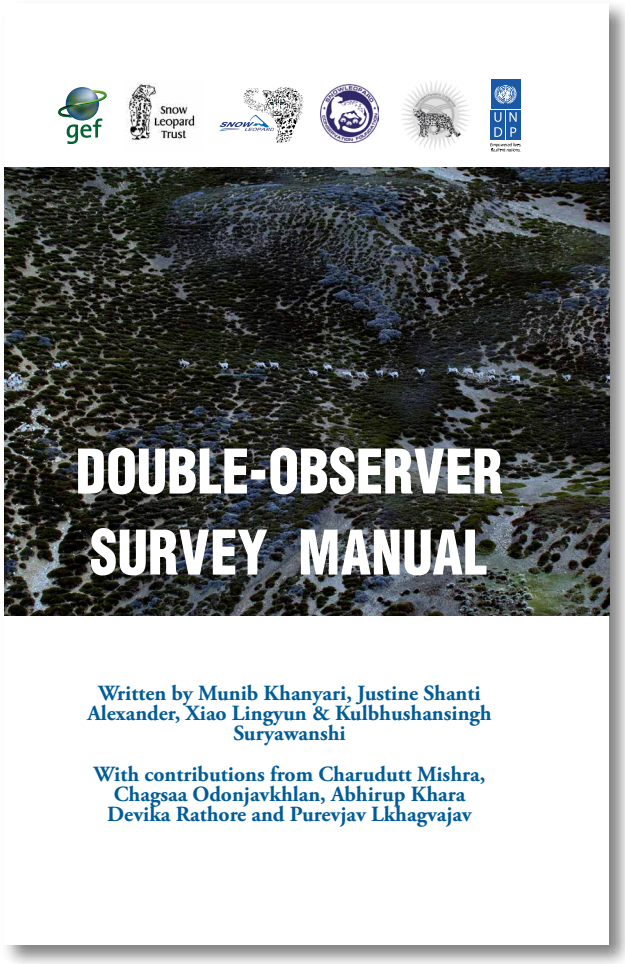


Figure 33: Prey monitoring manual

The development of the **snow leopard genome sequence** is underway. The work is being done through wide-ranging partnerships with international organizations and experts on genome sequencing and in partnership with the range countries. The snow leopard library preparation has been completed and samples have been sent out for sequencing in August, 2020. New collaborations are being forged to access high quality genetic samples to ensure that a Single Nucleotide Polymorphism (SNP) panel is available by the end of 2021 with sufficient diversity to be used to identify individual snow leopards with high levels of confidence. The current number of samples hold promise and we hope that the work done will pave the way in the near future to estimate the source regions from blood, fur, fecal or other genetic samples (Figure 32).

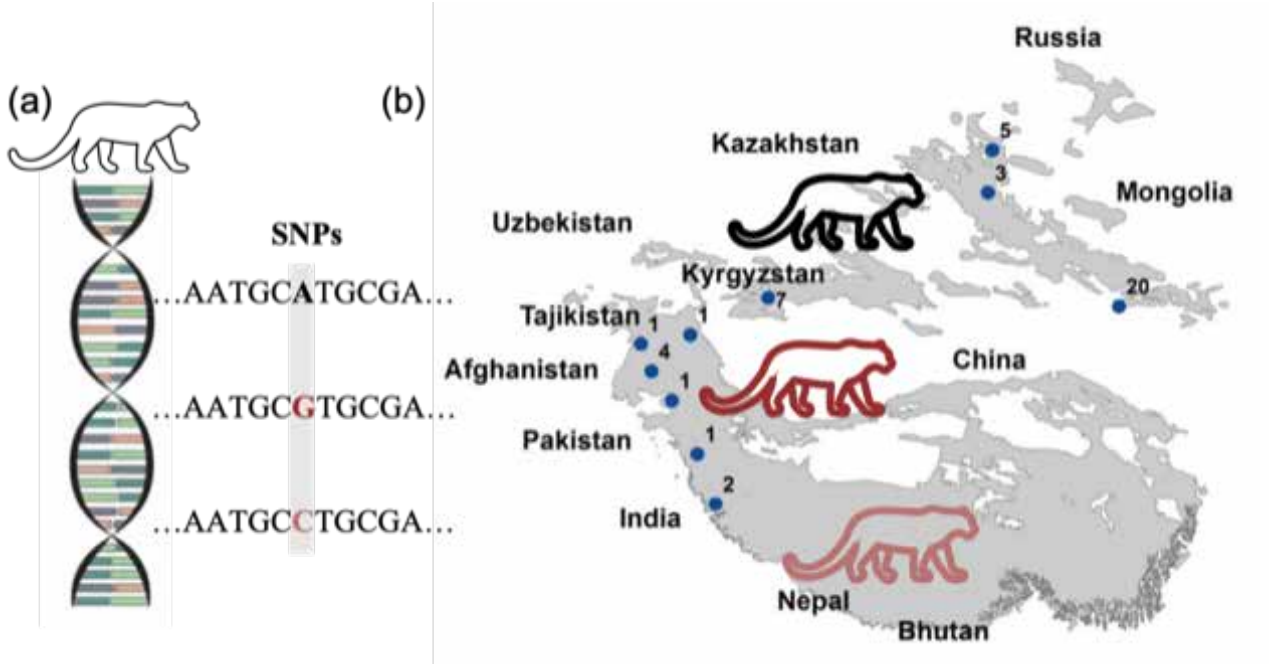


Figure 34: Availability of high quality genomic data from samples across the snow leopard range to develop the Single Nucleotide Polymorphism panels

Capacity building toolkits for PAWS have been developed and several **training workshops** have been conducted across the snow leopard range to train partner organizations and individuals about the PAWS workflows and build their capacity in designing, collecting and analysing data (link: https://globalsnowleopard.org/gslep-projects/paws/paws-tools/).

Figure 35: PAWS training being conducted in Pakistan

PAWS update and PAWS Summit:

Information on snow leopard abundance estimations was collated from 150 different sites across the snow leopard range, moving PAWS closer toward a global snow leopard population estimate. A two-day virtual summit was organized for problem solving, sharing updates and deciding the way forward for the next two years.

PAWS Summit: A total of 123 individuals registered for the PAWS Summit. The summit took place over two days and consisted of a mix of live engagement sessions along with live streamed sessions. In the first session of the PAWS Summit, a set of challenges were identified by PAWS partners to organize an interactive Problem Solving session. Individuals that signed up to the PAWS Summit were asked if they face particular challenges in the planning or implementation of PAWS. The challenges that emerged in this preliminary exchange formed the basis of the 'Solve my Problem' sessions. We invited 10 technical experts as facilitators in breakout rooms for a set of 6 challenges. Topics that were covered included:

- PAWS Study Design
- PAWS Data Processing
- PAWS abundance data analysis (includes low density sites)
- Genetics sampling for PAWS surveys
- Complimentary surveys including prey and threats
- Funding opportunities

Following the breakout sessions, topic facilitators summarized what each challenge represented and how they could be addressed in practice (Link to discussions). Overlaps amongst the different topics were identified and solutions discussed. The session engaged 79 participants from across the world. This Second Session was the Main session and consisted of updates at the global level, updates from three snow leopard range countries (Mongolia, India and Bhutan) and a discussion forum for generating new ideas for the future of PAWS. This was the first opportunity to showcase the entire PAWS global efforts to date – including efforts being made across the 12 range countries. A number of additional presentations were live streamed during the PAWS Summit. In addition a virtual Knowledge Kiosk was set up on the GSLEP Steering Committee Virtual Platform to showcase some of the PAWS tools and capacity building efforts.

Post the Summit, a slack workspace has been created to continue interaction between researchers and subject experts. The PAWS Summit report was shared with all the delegates and participants. Recording of the PAWS Summit can be accessed here:

a) Problem solving sessions: https://www.youtube.com/watch?v=N8vJXKF6Lg8&t=46s

b) PAWS Showcase: https://www.youtube.com/watch?v=fuZ1EvyJ5YM&t=1892s

c) PAWS Summit Report: Provisional link to be added on the GSLEP website

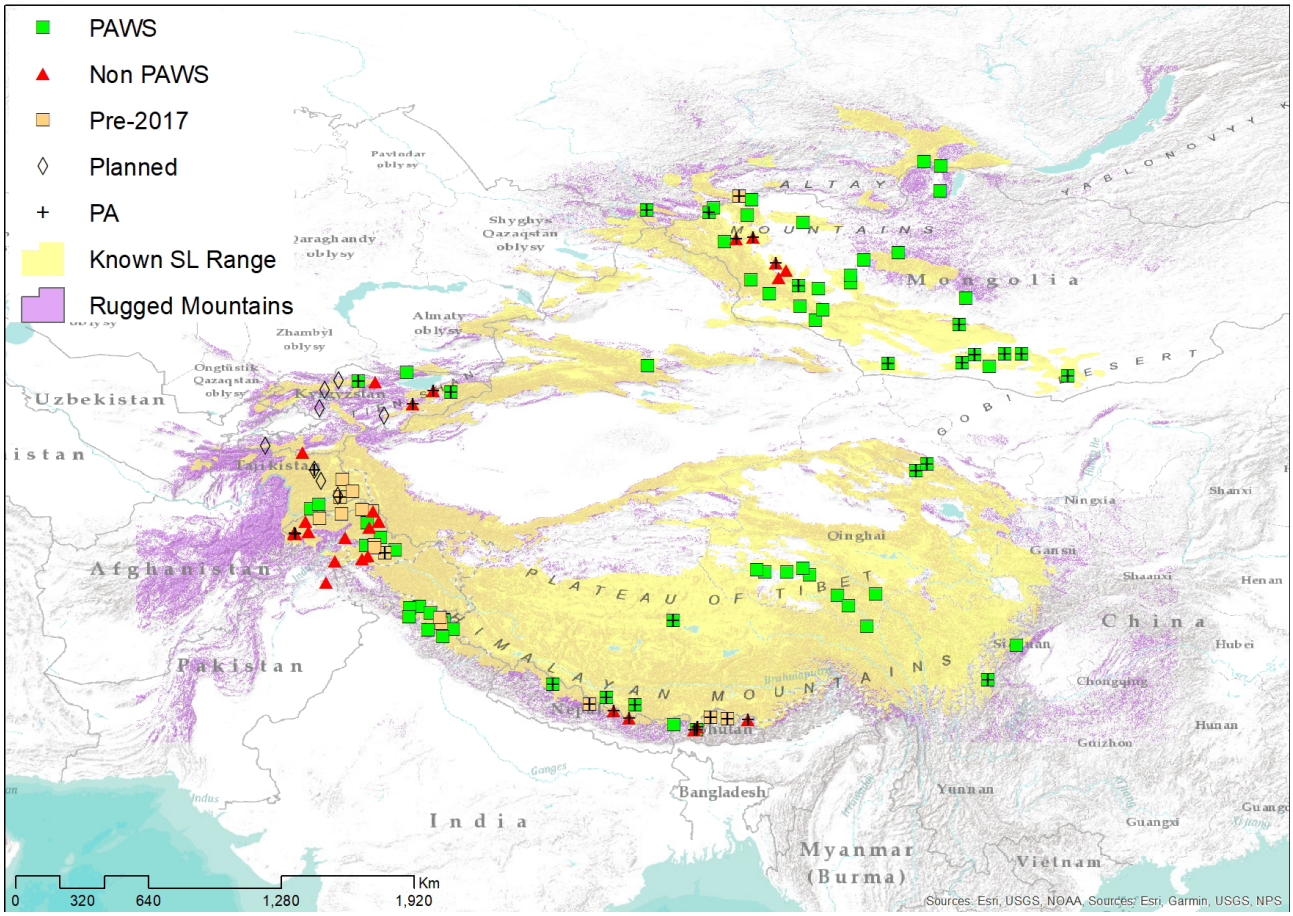


Figure 36: PAWS compliant snow leopard abundance survey locations that have BEEN completed, ARE ongoing or BEING planned

Country-specific PAWS update:

Across all 12 snow leopard range countries, a total of 29 teams have been involved in conducting snow leopard abundance surveys. These represent 125 survey sites which have been identified by government and national teams and subsequently submitted to PAWS. Out of these, 79 surveys met PAWS guidelines and took place between 2017–2020. At a minimum these 79 sites cover roughly 133,300 km^2 – covering approximately 6–10% of the currently known snow leopard distribution range. This extraordinary achievement could not have been possible without the ownership of PAWS across countries by the multiple teams working at the local and country levels.

Although they are all on-board, countries are at different stages with respect to the PAWS surveys. Countries such as Mongolia have used the PAWS protocols to survey the entire country to assess snow leopard distribution, and followed it with intensive camera trapping surveys using the balanced sampling approach for estimating snow leopard abundance nationally. In India, specific PAWS protocols were developed collaboratively, following which two of the five states have already completed PAWS surveys. In Kyrgyzstan, PAWS surveys are being conducted collaboratively by multiple organizations supporting the Government, whereas Afghanistan, Tajikistan, Bhutan, China, Kazakhstan, Pakistan and Uzbekistan are working on finalizing the planning process to ensure the surveys represent the country or

specific region. Below we present a brief status update about the PAWS surveys across the snow leopard range countries.

Afghanistan: The WCS Afghanistan team has conducted intensive camera trap surveys across two sites within the Wakhan corridor that represents most of the known snow leopard distribution in the country. The dataset is currently being analyzed by researchers and consultants using AI based tools to augment individual identification, and spatial capture recapture methods to estimate abundance and density using PAWS protocols.

Bhutan: The first national population estimate was conducted in Bhutan in 2016. The surveys included sign surveys for distribution assessment, and camera trapping for assessment of the population across a large part of the country. The PAWS core advisory team is currently working with the representatives in Bhutan to design the country-wide survey using balanced adaptation sampling for the identification of sites of interest that represent the entire country's potential distribution range, and optimization algorithms for camera trap layouts that minimize variance. A series of planning workshops have been organized with the officials from Bhutan in 2021 and the data collection and analysis is expected in 2022.

China: A total of 17 camera trap surveys that are compliant with PAWS have been completed and are currently underway in China. These sites cover approximately 37,000 km^2. Various organizations are currently translating the training and capacity building toolkits developed and shared by the PAWS core team, whereas other teams are using the online resources developed under the project to understand the PAWS process for implementation.

India: A detailed document describing the PAWS protocols was developed by the Government of India with support from national and international experts. Using the protocols, state-wide surveys were completed and population estimates of snow leopards released for the state of Himachal Pradesh. It is estimated that the state has 51 snow leopards (with statistical confidence limits ranging from 34 to 73 individuals) with a density between 0.008 to 0.37 individuals per 100 square kilometers. The first state-wide survey in the country was done over a three year period in collaboration between the Himachal Pradesh Forest Department (HPFD), Nature Conservation Foundation (NCF), and the Snow Leopard Trust (SLT). Similar surveys are currently underway in other States of the country through collaborative initiatives between the State Governments, Wildlife Institute of India, World Wildlife Fund, and other partners.

Kyrgyzstan: National planning workshops for PAWS have been conducted in Kyrgyzstan, led by the State Agency for Environment Protection and Forestry (SAEPF), and with support from the GSLEP Secretariat, UNDP and other NGO partners. Representatives of collaborating NGOs were trained in PAWS compliant design and implementation of camera trapping surveys, and specific teams are receiving guidance on trap layouts for optimum efficiency. Systematic surveys are currently underway across multiple landscapes representing north, south east and western parts of the country.

Mongolia: The nationwide snow leopard population assessment was initiated in 2018 following a series of workshops led by WWF and Snow Leopard Conservation Foundation, Ministry of Nature and Environment, and other NGO partners. A four-day long planning

workshop for nation-wide assessment of the snow leopard's distribution and abundance brought all stakeholders on the same page including WWF-Mongolia, Ministry of Environment and Tourism of Mongolia, Snow Leopard Conservation Foundation, Irbis Foundation, Wildlife Conservation Society, Snow Leopard Trust, National University of Mongolia, Mongolian Academy of Sciences and Otgon-Bor khavtsal. The workshop helped build an understanding of the basic sampling theory, methods of occupancy estimation and spatial capture recapture modelling for the participants who were to lead teams from various organizations to conduct surveys across all of Mongolia's supposed snow leopard range.

Following the workshop, the entire country's potential snow leopard habitat was surveyed by twelve teams consisting of 60 researchers, 126 rangers and 31 drivers in a coordinated effort between August 2018 and March 2019. The first national assessment of snow leopard distribution accounting for imperfect detection was used to detect potential bias in sampling, and eliminated it through the balanced adaptive sampling approach by identifying sites that could be sampled intensively for estimation of the nation-wide abundance of snow leopards. The preliminary estimates from Mongolia, based on 22 independent camera trapping surveys, were released in March 2021. The final estimates are expected by the end of 2021 once the remaining cameras are retrieved from the field, and all appropriate models tested for rigorous estimation.

Nepal: PAWS surveys are being conducted across Nepal by different organizations. One large landscape representing 12,000 sq km of Central Nepal has been surveyed using genetic samples with results published in 2019. Currently, camera trapping surveys designed using PAWS protocols are being conducted in West Nepal, whereas surveys are being planned for East Nepal in collaboration with other local partner organizations and the Government. An online workshop to take stock of the situation with PAWS across the country and plan sampling within the gaps is expected by the end of 2021.

Pakistan: In Pakistan, Snow Leopard Foundation has been conducting systematic camera trap surveys since 2006. So far 24 camera trap trapping sessions have been conducted across Pakistan's snow leopard range covering all three administrative units that have the potential snow leopard range; Khyber Pakhtunkhwa, Gilgit-Baltistan and Azad Jammu & Kashmir. In all, data have been processed from 940 camera stations representing an effort of more than 33,000 trap days. Preliminary analyses for some areas have been conducted using Spatial Capture Recapture methods. For a country wide estimation of snow leopard population, the field teams are currently assessing data sufficiency and gaps with the help of PAWS tools, and hope to complete the remaining surveys before 2022.

Camera trapping, sign surveys for occupancy estimation, and genetic surveys were conducted across representative landscape in Pakistan. Probability of site use by snow leopard in the Pamir region has been estimated and its scientific publication is currently in review (Din et al. 2021). Genetic sampling has been conducted throughout the potential range and landscapes that have not been represented will be surveyed in 2021. Additional information on snow leopard conflict and distribution across the entire range has been collected through a questionnaire survey that has so far conducted 3500 interviews from more than 300 villages.

Apart from conducting surveys, the country-teams have also invested resources on improving camera trap study design and data analysis. Two recent publications provide guidance on sampling designs (Dupont et al. 2020, Nawaz el al. 2021) and one helped identify priority landscapes for conservation (Hameed et al. 2020).

Russia: The snow leopard habitat in Russia is surveyed once every 2 years. The snow leopard monitoring programme developed by WWF Russia is used to provide all surveys in the snow leopard landscapes; and now it has been sent to the Ministry of Natural Resources and Environment for consideration and approval. In 2019 a country wide camera trap survey identified 65 individual snow leopards. In the Altai landscape 45 individuals were counted during the survey in 2019. The next nation-wide survey is being planned for the beginning of 2022, and a systematic analysis and assessment using PAWS protocols is proposed in 2021.

Tajikistan: Snow leopard surveys are currently being implemented in three landscapes representing the Pamir Mountain range that comprise the majority of the country's snow leopard habitat. Balanced Adaptive Sampling and optimization of camera trap placement is used to identify sites and locations that can be surveyed to come up with a representative estimate of snow leopard abundance from the landscape. Planning and capacity building workshops were planned but have been delayed due to COVID related restrictions.

Uzbekistan: With support from UNDP and GEF, the country has initiated the process of planning and implementing the distribution and population assessment survey across the potential snow leopard habitat. Meetings and Workshops with the PAWS core team are planned for 2021 to help alignment of the efforts with the PAWS protocol.

Figure 37: PAWS planning workshop in Kyrgyzstan

4.2 Output 2.2: Development of spatial database for the monitoring and management of one transboundary landscape

The spatial database for the transboundary landscape was created by first looking at the entire snow leopard range maps identifying: country specific political boundaries, protected area boundaries, altitude, slope, ruggedness index, tree cover, and potential map of habitats and grid for distribution surveys. Spatial layers from multiple GSLEP landscapes were then collated which identified human settlements, habitat suitability, land-use, conservation zonation, snow leopard abundance, linear and static infrastructure, and climate projections. These spatial databases have been used for a diverse range of applications. To make the database accessible to all stakeholders, an online repository has been created using ArcOnline platform for spatial datasets. The database can be accessed here: https://snowleopard.maps.arcgis.com/home/gallery.html?view=grid&sortOrder=desc&sortField=relevance

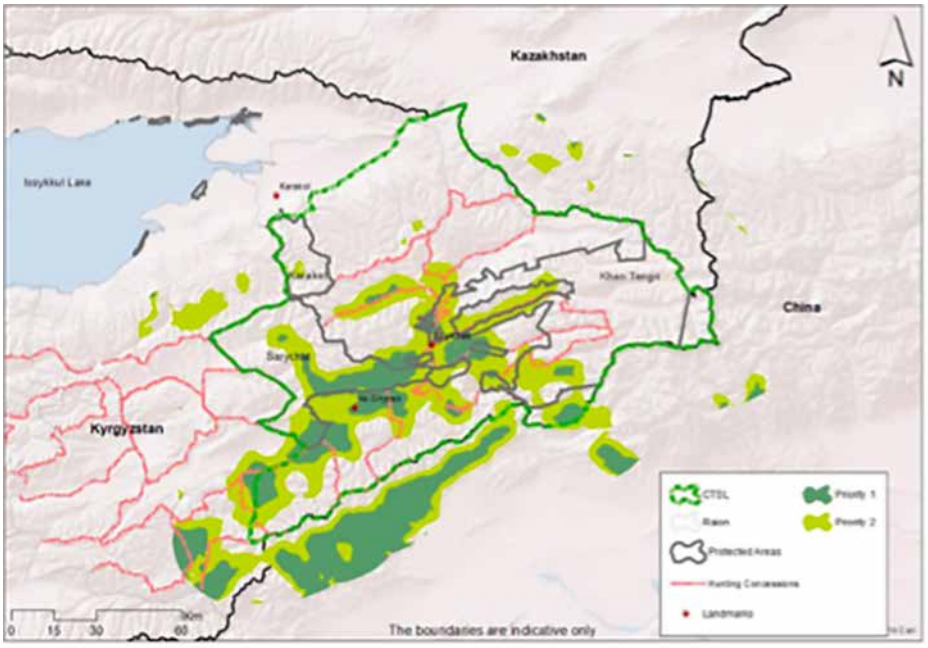


Figure 38: Management plans for transboundary landscapes were developed based on collated geospatial datasets

4.3 Output 2.3: Sustainable landscape management measures are identified and presented to stakeholders for implementation

A management plan for the Central Tien Shan was formally released in October 2018 at the World Mountain's Forum after several months of development. The operational management plan was endorsed through a government decree in December 2019.

Management planning for GSLEP landscapes in Kazakhstan and other countries is currently underway through the identification of local partners and recognition of process for management planning. Additionally, management planning work was supported for landscapes in Afghanistan, Bhutan, India, Pakistan and Mongolia.

The Trans-boundary landscape between four Central Asian countries is under the process of being approved. Different ministries from the four countries have approved the MoU. The final approval is pending along with preparing an implementable action plan, and a draft action plan is ready to be implemented contingent to the endorsement of the MoU between the four countries.

Figure 39: Kyrgyz Central Tien Shan Landscape Management plan being released in October 2018

5. OUTCOME 3. EFFECTIVE AND SUSTAINABLE TRANSBOUNDARY CONSERVATION MECHANISM FOR SNOW LEOPARD ECOSYSTEMS

This Outcome focused on fostering an effective global partnership for snow leopard conservation including: strengthening the GSLEP Secretariat, improving its information-sharing mechanisms and financing; developing the GSLEP Forum as the global collaborative mechanism for governments, international partners and donors; and establishing platforms for engagement with the private sector to secure their support and resources for snow leopard conservation actions at national and global levels. In the pilot transboundary landscape, the project designed and put in place an appropriate multi-partner coordination mechanism that brought together local stakeholders to coordinate actions and mobilise resources more effectively. Particularly, the project explored and implemented financial mechanisms to improve funding of snow leopard conservation: development of robust GSLEP Funding Strategy, establishment of a consortium of partners to provide shared funding for snow leopard conservation in the selected transboundary landscape, building Targeted National portfolios of projects to engage the business sector in snow leopard conservation in Central Asian Countries, engagement of large corporations to support conservation of snow leopard Priority Landscapes and GSLEP implementation in cooperation with other organizations, and establishment of linkages with industries for snow leopard conservation in Central Asian countries. Such mechanisms served to leverage additional financial resources that were necessary to ensure the sustainability of global, national and local actions on snow leopard conservation. An important output under this component was the establishment of dialogue platforms at local, national and global levels to engage with the private companies that are working in, or making use of resources, from snow leopard landscapes, such as mining, tourism, hunting and pharmaceutical companies.

This component strengthened the GSLEP Secretariat's capacity to provide technical and other support to the range countries. We developed and shared global and national tools for financing snow leopard ecosystem conservation and established dialogue platforms with the private sector.

5.1 Output 3.1: Global coordination mechanism for technical support, resource development and knowledge-sharing is strengthened

None of the tools or instruments developed under the project are going to have value unless they are tied to a global coordination mechanism that works through a feedback loop of constant review, research and innovation. Several mechanisms were explored and developed to integrate with on-going and proposed conservation plans in snow leopard landscapes:

a) **Funding for snow leopard conservation:** Funding has been catalyzed for snow leopard conservation in the Central Asian region. So far projects worth >11 million USD are being implemented or are in the pipeline. Funding has been made available in the

region by various organizations and funding partners through different programs from the following sources:

- IUCN SOS: $ 500,000
- CEPF: $ 8 million
- Luxemburg: $ 3 million

b) **Big cats concept note:** A concept note titled big cats program was developed and endorsed by the governments of the range countries before it was presented at the GEF assembly in Vietnam.

c) **Declarations, resolutions and conclusions:** Several declarations and resolutions have been endorsed by all 12 snow leopard range countries since 2017. The Bishkek Declaration 2017 on the conservation of the snow leopard and its mountain ecosystems was endorsed at the highest level by all 12 snow leopard range countries. The subsequent Resolutions, Consensuses and Statements were endorsed by Environment Ministers or their nominees from the snow leopard range countries, which serve as the blueprints of the progress made and future work planned for snow leopard conservation. These include the Issykul Statement 2018, the Schengen Consensus 2019, the New Delhi Statement 2019, and the GSLEP Resolution for 2020.

d) **GSLEP website (www.globalsnowleopard.org):** The GSLEP website has been upgraded to share regular updates with information, products, publications, and links with stakeholders from across the world. The website has been upgraded to an interactive knowledge hub and a capacity center for global snow leopard conservation priorities.

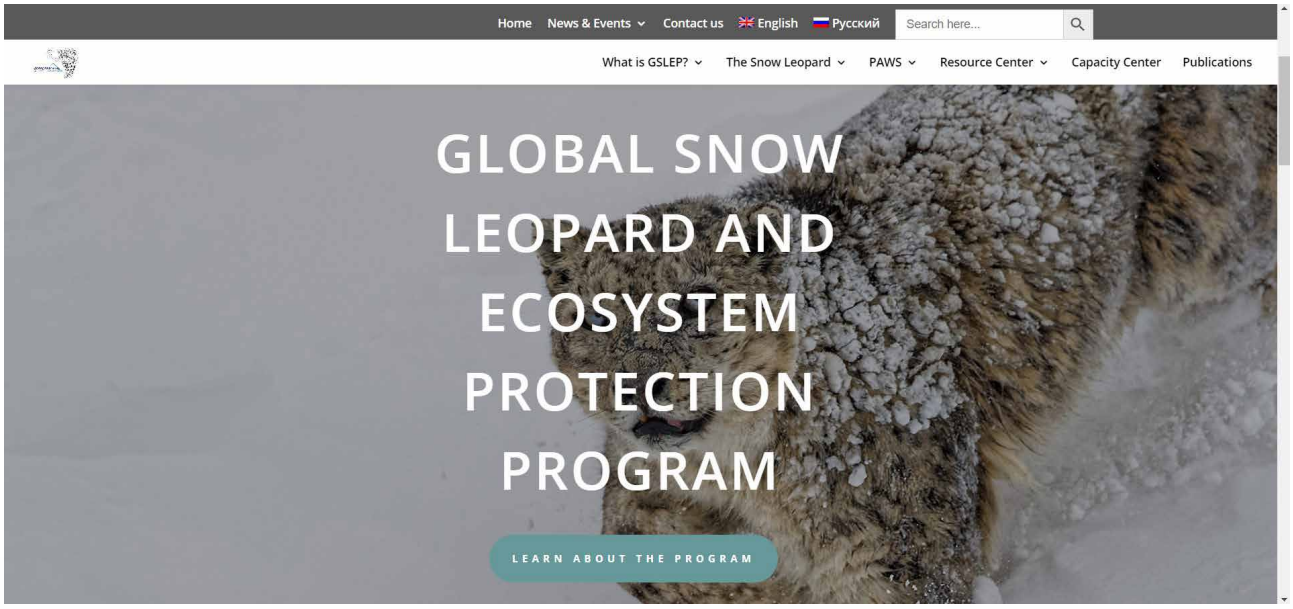


Figure 40: The GSLEP website can be accessed at www.globalsnowleopard.org

e) **GSLEP Forum 2017:** In 2017, the GSLEP Forum was hosted by the Kyrgyz Government in Bishkek with support from the project. It was the biggest ever aggregation of people for snow leopard conservation. Countries were represented by Presidents, Vice Presidents, Deputy Speakers and Ministers. Inaugural speeches were delivered by the Secretary of the United Nations, and heads of UNEP, WWF International, Snow Leopard Trust, GTI Council and NABU. The Bishkek Declaration 2017 was adopted by all 12 range countries and a compilation of updates from all range countries was published. A scientific symposium and an expo was organized around the Forum. Celebrities such as Leonardo Di Caprio, Dia Mirza, Vivek Oberoi, Jubin Nautiyal and Megan Fox connected millions of people worldwide with the message about snow leopard conservation, whereas UN Goodwill Ambassador Dia Mirza presented an appeal signed by 350,000 people from across the world, requesting the Governments of the snow leopard range countries to take the needful action for snow leopard conservation. More than 25 news articles and media stories were published about the event.

Figure 41: The Bishkek Forum, 2017 was attended by more than 500 people from across the world including heads of state, speakers, ministers, vice ministers, heads of multilateral organizations, leadership from conservation organizations, heads of business organizations, and conservationists

f) **Outreach:** A range of outreach activities have been organized ever since to raise awareness about the snow leopard conservation including a half marathon in Bishkek, a virtual global run in 2020, and various celebrity engagements for snow leopard conservation.

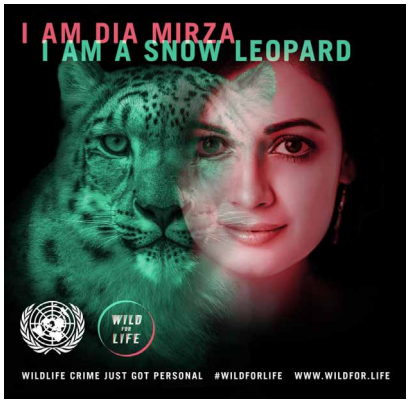


Figure 42: Celebrities with millions of followers helped raise awareness of snow leopards and their ecosystems

5.2 Output 3.2: Global and national tools for financing snow leopard ecosystem conservation developed, piloted, and shared

This component of the project attempted to tackle the challenge of resolving the perennial conflict between development and conservation. For far too long, global conservation efforts, driven by protection and exclusion, and economic development driven by consumerism and economies of scale, have been locked in an adversarial relationship with negative consequences for each other. This is where an alternate model for global development, that synergizes economy with ecology, has the potential to help humanity move towards a more sustainable planet. This component focused on creating the conditions necessary to focus on a new model for development.

a) **Financing for Conservation:** Improvement in the lives and livelihoods of local communities is a critical aspect of snow leopard conservation and preservation of Asia's mountains. Ensuring that human development in snow leopard landscapes is environmentally and socially sustainable is essential. This, in turn requires resource mobilization from diverse financial mechanisms. With this end, a policy and a modality framework was developed, for financing conservation in snow leopard landscapes. The document can be accessed here: https://globalsnowleopard.org/wp-content/uploads/2021/05/Conservation_financing.pdf

b) **Economic Valuation of ecosystem services from snow leopard landscapes:** Through this project a study was commissioned to economically evaluate ecosystem services from the snow leopard landscapes. The study reports the high economic value of ecosystem services and created a replicable framework that can be used to conduct similar valuations elsewhere (link: https://globalsnowleopard.org/wp-content/uploads/2018/12/Valuation-of-ecosystem-services-in-snow-leopard-landscapes.pdf)

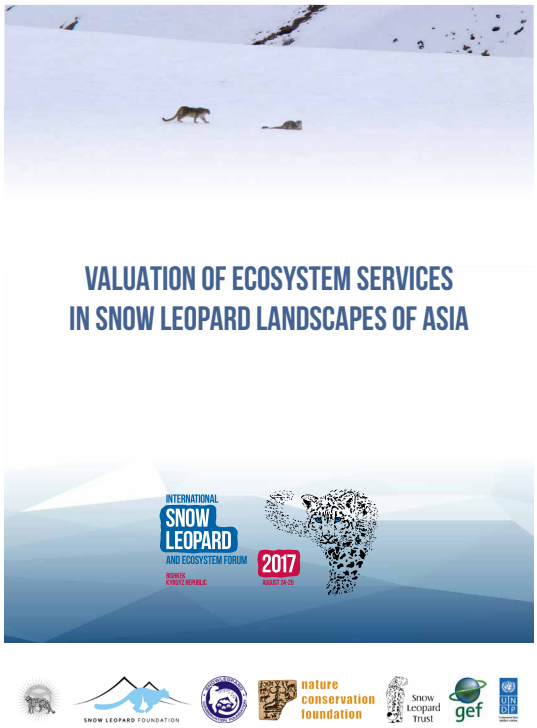


Figure 43: Report on the valuation of ecosystem services used by agro-pastoral and pastoral communities across the snow leopard range

c) **Bilateral discussions between Kyrgyzstan, and India and Mongolia:** Bilateral talks between Kyrgyzstan and India, and Kyrgyzstan and Mongolia that focused on green economic development through collaborations in mountain ecology, green tourism, and snow leopard conservation.

5.3. Output 3.3: Private sector dialogue platforms established

a) **The Green Investment Forum** organized in 2017, attended by more than 20 business leaders from the snow leopard range countries helped popularize the concept of innovative conservation financing through development of models of green economy. With ecosystem services valuation as its foundation, this has allowed us to develop a strategy for green development in the region. Some of Asia's biggest business leaders from China, India, Nepal, and Pakistan attended the forum.

Figure 44: Hundreds of thousands of people from across the world urged the Governments of the 12 snow leopard range countries to prioritize the conservation of snow leopards and their unique habitat

b) **Green Economy Strategy Document:** A strategy document was developed which is based on the idea that economic development is driven by the sustainable use of ecosystem services and biodiversity conservation. The document proposes a landscape approach to development, which relies on zonation of the landscape demarcating areas of biodiversity protection, use of ecosystem services, and areas for economic development. This document was shared with relevant stakeholders including the government and parliament.

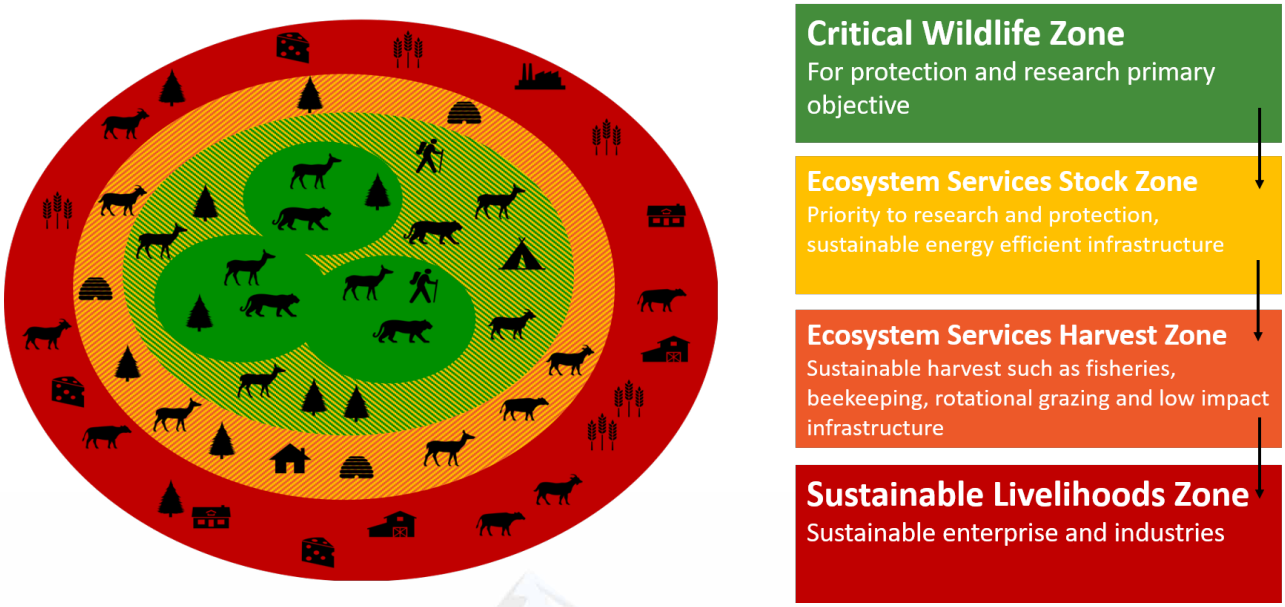


Figure 45: The Conservation For Development paradigm is based on a spatially explicit conservation model prioritizing protection and sustainable use for economic development

c) **Draft proposals to support green development:** Several draft proposals for green development activities have been submitted. They are based on ecotourism and nature-based products and services.

d) **Green economy round table:** A green economy round table was held to discuss a green development strategy for the Kyrgyz Republic. It was discussed to set-up a pilot landscape with zonations to illustrate this approach. The project has garnered support from parliament, entrepreneurs, local government and federal government agencies.

Figure 46: Attendees at the green economy round table

6. CONCLUSION

Operations for the project "Transboundary cooperation for snow leopard and ecosystem conservation" was started in 2017 and completed in 2020. Under this project there were several outputs produced under each outcome, most of which are freely available on the GSLEP website. Capacity was developed at different levels for trans-boundary conservation of the snow leopard focusing on Central Asia, but many tools are also applicable across the snow leopard range and have been made available through GSLEP.

The project helped us start important work across Central Asia and the larger snow leopard landscapes. The crucial work that was initiated by the project will be continued by securing further funding. So far SLT has committed until at least 2022 to support GSLEP secretariat operations with support from various other donor partners. Funds have also been secured from UNEP to support part of the GSLEP secretariat's operations, with support from various other donor partners.

This project has moved us closer to securing landscapes for the future of the charismatic snow leopard.

ANNEX 1: ROLES AND RESPONSIBILITIES OF STAKEHOLDERS IN PROJECT IMPLEMENTATION

Stakeholder	Anticipated Role in Project
Intergovernmental organizations, conventions and multilateral agencies	
GSLEP (Global Snow Leopard and Ecosystem Protection Program)	GSLEP was established in 2014 by the adoption of the *Bishkek Declaration on the Conservation of Snow Leopards*. The Steering Committee and Secretariat coordinate and support implementation of the GSLEP and its related NSLEPs. They conduct annual program consultations with all the range countries, donors and partners to review progress; organise periodic consultations to map flow and utilization of funds, review funding situation and coordinate energies at filling key gaps; conduct thematic and technical consultations on specific elements of the program to facilitate knowledge exchange, adoption of good practices, cross-sectoral engagement and coordination, and support leadership. The GSLEP Secretariat will play an integral role in the implementation of this project. Key responsibilities in the project are: • Project technical coordination and implementation of all project activities • Facilitation of discussion, approval and implementation of standard monitoring system for snow leopard, its prey species, and ecosystems among range countries • Control of GSLEP implementation related measures at the global level • Facilitation of discussion, approval and implementation of GSLEP financial strategy • Organization of the Snow Leopard Forum in 2017 one key activity under the project • Initiation of collaboration with private sector to provide sufficient funding for GSLEP as part of project's intervention in improving financial status for snow leopard conservation • Establishment of global monitoring center for snow leopard populations and ecosystems and quality assessment of the global monitoring framework developed under the project In addition the GSLEP Steering Committee and Secretariat will coordinate closely with the Global Tiger Initiative Council and Global Tiger Forum on governance, financing and implementation issues, particularly at global level and in range states shared by the two species. The project will be advised by the GSLEP Secretariat on all such matters.
UNDP	The GEF implementing agency. UNDP environment programmes in Central Asia promote introduction of a holistic approach to the planning, management and conservation of land, water and forest resources and biodiversity as key areas of intervention to enhance resilience of ecosystems and vulnerable populations to the changing climate. • Overall project supervision, monitoring and evaluation • Project funding from GEF resources • Negotiation with other donors on the project co-financing in Central Asian countries • Reporting to GEF on the project progress • Implementation of/coordination with complementary GEF projects in Central Asia

Stakeholder	Anticipated Role in Project
CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora)	This Convention aims to ensure that international trade in wild animals and plants does not threaten their survival. Although CITES is legally binding on the Parties, it does not take the place of national laws. Rather it provides a framework to be respected by each Party, which has to adopt its own domestic legislation to ensure that CITES is implemented. • Participation in / advice on the development of training materials and trainings for customs officers, border guards and wildlife inspectors in Central Asia
CMS (The Convention on the Conservation of Migratory Species of Wild Animals)	This Convention aims to conserve terrestrial, aquatic and avian migratory species throughout their range. • Coordination of development of international agreements and programs for conservation of transboundary populations of snow leopard and its prey species
Global Tiger Initiative (GTI) / GTI Council	GTI was established as a global alliance of governments, international organizations, civil society, the conservation and scientific community, and the private sector committed to working together toward a common agenda to save wild tigers from extinction. The GTI assists the 13 tiger range countries to carry out their conservation strategies and drive the global tiger conservation agenda, through planning, coordination, and continuous communication. Up to 2015, at the request of the host government of the GSLEP, Kyrgyz Republic, GTI has been performing similar functions by accompanying the Secretariat in planning and conducting its operations. Following changes in governance arrangements in 2015, a high-level GTI Council was set up. The Council is expected to support both the GTI and the GSLEP, leading to even closer links with GSLEP. Key roles of the GTI Council include but are not be limited to: • Generating Political will and advocating for conservation; • Coordinating global support to the programs; • Mobilizing resources; • Enabling convergence and connectivity; • Building alliances, publicity and awareness.
World Bank Institute / Leadership, Learning and Innovation Vice Presidency of the World Bank	The World Bank Institute was one of the Bank's main instruments for developing individual, organizational, and institutional capacity through the exchange of knowledge delivering learning programs that create opportunities for development stakeholders to acquire, share, and apply global and local knowledge and experiences. In the case of the GSLEP, the WBI delivered leadership trainings similar to those offered as part of the GTI. WBI has recently transformed into the Leadership, Learning and Innovation Vice Presidency of the World Bank. LLI does not provide any project funding. It supports Bank projects by providing capacity development for country clients. With GTI moving out of the Bank, there is no longer any support going to biodiversity and conservation, although LLI does provide leadership development, knowledge management, learning and innovation in a number of environment and natural resources projects. Future opportunities for collaboration remain to be explored.
GIZ	German bi-lateral development assistance agency • Development of sustainable natural resource consumption in snow leopard habitat in Central Asia • Participation in the development of international agreements and programs for conservation of transboundary populations of snow leopard and its prey species
ICSD (Inter-Governmental Commission for Sustainable Development in Central Asia)	The international body for coordination of biodiversity conservation and sustainable development initiatives of Central Asian countries, established in 2000. • Consideration and approval of international agreements and programs for conservation snow leopard and its prey species, wildlife migration corridors, control of wildlife trade and transboundary nature reserves

Stakeholder	Anticipated Role in Project
ICIMOD (International Centre for Integrated Mountain Development)	ICIMOD is a regional intergovernmental learning and knowledge sharing centre serving the eight countries of the Hindu Kush Himalayas, including six GSLEP countries – Afghanistan, Bhutan, China, India, Nepal, Pakistan. • Advice on conservation and sustainable use of natural resources in landscapes defined by ecosystems rather than administrative boundaries • Mountain environment regional information system that encompasses long-term monitoring, database development and uptake of knowledge
INTERPOL Environmental Crime Program	INTERPOL Environmental Security Sub-Directorate leads global and regional operations to dismantle the criminal networks behind environmental crime using intelligence driven policing; coordinates and develops international law enforcement best practice manuals, guides and other resources; provides environmental law enforcement agencies with access to our services by enhancing their links with INTERPOL National Central Bureaus. The INTERPOL Wildlife Crime Working Group brings together criminal investigators from around the world to share information and initiate targeted projects. INTERPOL's Project Predator, primarily supported by USAID has been actively participating in international snow leopard conservation efforts for several years, including the drafting of the GSLEPs Law Enforcement Component. • Participation in the analysis of poaching and wildlife trade levels in Central Asia • Analysis of legislation of Central Asia's countries for control of poaching and illegal wildlife trade • Participation in the development of training materials and trainings for customs officers, border guards and wildlife inspectors on control of poaching and illegal wildlife trade in Central Asia • Organization of international collaboration of customs department in Central Asia
National level – Governmental	
Governments of Islamic Republic of Afghanistan, Kingdom of Bhutan, People's Republic of China, Republic of India, Mongolia, Nepal, Islamic Republic of Pakistan, Russian Federation	The 8 range countries that are members of the GSLEP initiative, but which are not specifically targeted by the current project. • Discussion, approval and implementation of standard monitoring system for snow leopard, its prey species, and ecosystems • Control of GSLEP implementation at the national level • Discussion, approval and implementation of GSLEP financial strategy • Participation in the Snow Leopard Forum in 2017
Committee for Forestry and Wildlife of the Ministry of the Agriculture of the Republic of Kazakhstan	The national body responsible for GSLEP implementation in Kazakhstan. • Overall supervision of project implementation in Kazakhstan • Participation in capacity building and development of inter-agency collaboration of customs officers, border guards, wildlife agencies and PA staff • Management of development of international agreements and programs for snow leopard conservation • Ensuring integration of standard monitoring system for snow leopard, its prey species, and ecosystems into national biodiversity monitoring system of Kazakhstan
Republican State Institution "Okhotzooprom", Kazakhstan	The national agency responsible for control of wildlife crime. • Participation in the development of inter-agency and international collaboration to control poaching and illegal wildlife trade in the snow leopard habitat • Participation in capacity building of customs officers, border guards, wildlife agencies and PA staff • Leading anti-poaching inter-agency collaboration in Sarychat/Northern Tien Shan Transboundary Landscape

Stakeholder	Anticipated Role in Project
State Agency on Environment Protection and Forestry of Kyrgyz Republic	The national body responsible for GSLEP implementation in the Kyrgyz Republic. • Support to GSLEP Secretariat • Overall Supervision of the project implementation in Kyrgyzstan • Participation in capacity building and development of inter-agency collaboration of customs officers, border guards, wildlife agencies and PA staff • Management of development of international agreements and programs for snow leopard conservation • Ensuring integration of standard monitoring system for snow leopard, its prey species, and ecosystems into national biodiversity monitoring system of Kyrgyzstan
State Agency for Environmental and Technical Safety of the Government of Kyrgyz Republic	The national agency responsible for control of wildlife crime. • Participation in the development of inter-agency and international collaboration to control poaching and illegal wildlife trade in the snow leopard habitat • Participation in capacity building of customs officers, border guards, wildlife agencies and PA staff • Leading anti-poaching inter-agency collaboration in Sarychat/Northern Tien Shan Transboundary Landscape
Committee for Environmental Protection under the Government of the Republic of Tajikistan	The national body responsible for GSLEP implementation in Tajikistan. • Overall Supervision of the project implementation in Tajikistan • Participation in capacity building and development of inter-agency collaboration of customs officers, border guards, wildlife agencies and PA staff • Management of development of international agreements and programs for snow leopard conservation • Ensuring integration of standard monitoring system for snow leopard, its prey species, and ecosystems into national biodiversity monitoring system of Tajikistan
National Biodiversity and Biosafety Center of Tajikistan	The national organisation responsible for CBD implementation. • Participation in capacity building of customs officers, border guards, wildlife agencies and PA staff • Development of international agreements and programs for snow leopard conservation • Participation in integration of standard monitoring system for snow leopard, its prey species, and ecosystems into national biodiversity monitoring system of Tajikistan • Participation in the negotiations with private sector in Central Asia to provide funding for snow leopard conservation
State Committee for Nature Protection of the Republic of Uzbekistan	The national body responsible for GSLEP implementation in Kazakhstan. • Overall Supervision of the project implementation in Uzbekistan • Participation in capacity building and development of inter-agency collaboration of customs officers, border guards, wildlife agencies and PA staff • Management of development of international agreements and programs for snow leopard conservation • Ensuring integration of standard monitoring system for snow leopard, its prey species, and ecosystems into national biodiversity monitoring system of Uzbekistan
State Inspection for Protection of Wildlife and Plants (Gosbiokontrol), Uzbekistan	The national agency responsible for control of wildlife crime. • Participation in the development of inter-agency and international collaboration to control poaching and illegal wildlife trade in the snow leopard habitat • Participation in capacity building of customs officers, border guards, wildlife agencies and PA staff

Stakeholder	Anticipated Role in Project
Customs Agencies of Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan	The national customs agencies responsible for controlling illegal wildlife trade • Development of international and inter-agency collaboration to control illegal wildlife trade in Central Asia
Border Guard Services of Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan	The national border agencies responsible for protection of state borders. • Participation in the development of international and inter-agency collaboration to control poaching and illegal wildlife trade in border zones of Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan
National level – Academic and Research	
Institute of Zoology of the National Academy of Sciences of Kazakhstan	National institutes responsible for biodiversity research and monitoring. • Participation in the development training materials for customs officers, border guards and wildlife inspectors on control of poaching and illegal wildlife trade in Central Asia • Participation in the development of conservation and monitoring programs and action plans for transboundary snow leopard populations • Participation in discussion and adoption of the global snow leopard monitoring system at national level in Central Asia
Institute Biology and Soils of the National Academy of Sciences of Kyrgyzstan	
Institute of Zoology and Parasitology of Tajik Academy of Sciences, Tajikistan	
Institute of Genetic Diversity of Plant and Animals of Academy of Sciences of Uzbekistan	
International NGOs working in Central Asia	
World Wildlife Fund -WWF (Central Asia Office)	WWF is the world's leading international conservation organization and works in over 100 countries. WWF is a key stakeholder and will be a key co-financier for the project both through its regional and national offices. • Participation in the analysis of poaching and wildlife trade levels in Central Asia • Participation in the development of training materials and trainings for customs officers, border guards and wildlife inspectors on control of poaching and illegal wildlife trade in Central Asia • Organization of international collaboration of customs department in the Central Asia • Participation in the development of international agreements and programs for conservation of transboundary snow leopard populations • Participation in the development of GSLEP financial strategy and negotiations with donors, including private sector • Project co-financing
Snow Leopard Trust (SLT)	SLT will be the implementing partner responsible for delivery of the project. SLT is a US-based NGO with partners and staff members in China, India, the Kyrgyz Republic, Mongolia, and Pakistan as well as in the United States and Sweden. The SLT builds community partnerships by using sound science to determine priorities for protecting the endangered snow leopard. SLT is a key international NGO working on snow leopard conservation. SLT is closely supporting the development of GSLEP through two international secondments.

Stakeholder	Anticipated Role in Project
Nature and Biodiversity Conservation Union (NABU)	NABU is one of the oldest and largest environment associations in Germany committed to the conservation of threatened habitats, flora and fauna, to climate protection and energy policy. NABU`s main objectives are the preservation of habitats and biodiversity, the promotion of sustainability in agriculture, forest management and water supply and distribution, as well as to enhance the significance of nature conservation in our society. It is a primary funder of GSLEP activities in Central Asia. • Participation in the analysis of poaching and wildlife trade levels in Central Asia • Participation in the development of training materials and trainings for customs officers, border guards and wildlife inspectors on control of poaching and illegal wildlife trade in Central Asia • Participation in the development of GSLEP financial strategy and negotiations with donors, including private sector • Project co-financing
Panthera	Panthera's mission is to ensure the future of wild cats through scientific leadership and global conservation action. • Participation in the analysis of poaching and wildlife trade levels in Central Asia • Participation in the development of training materials and trainings for customs officers, border guards and wildlife inspectors on control of poaching and illegal wildlife trade in Central Asia • Organization of international collaboration of customs department in the Central Asia • Participation in the development of programs for conservation of transboundary snow leopard populations in Central Asia • Project co-financing
Snow Leopard Conservancy (SLC)	SLC works on advancing community-based stewardship of the snow leopard through education, research and grassroots conservation action. SLC creates innovative, highly participatory, self-governing community-based conservation programs that serve as models for others, while simultaneously building in-country capacity of individuals and organizations for snow leopard conservation, research and education. • Participation in the development of global snow leopard monitoring system • Providing trainings for PA staff and wildlife agencies on snow leopard monitoring • Analysis of conservation transboundary cooperation experience in Eurasia
Fauna & Flora International (FFI)	FFI has been active in Central Asia for over 15 years, supporting work in the Kyrgyz Republic and Tajikistan to combat poaching, monitor snow leopards and encourage local communities to get involved in conservation. FFI is supporting work to implement the management plan of the Sarychat Ertash reserve within the pilot landscape, including training, resource provision, biodiversity surveys etc., and will support and coordinate with the project in these areas.
TRAFFIC	TRAFFIC, the wildlife trade monitoring network, is the leading non-governmental organization working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development. The project will take opportunities to work with on specific outputs related to wildlife law enforcement and information sharing. • Participation in the analysis of poaching and wildlife trade levels in Central Asia • Analysis of legislation of Central Asia's countries for control of poaching and illegal wildlife trade • Participation in the development of training materials and trainings for customs officers, border guards and wildlife inspectors on control of poaching and illegal wildlife trade in Central Asia • Organization of international collaboration of customs department in the Central Asia

Stakeholder	Anticipated Role in Project
National NGOs engaged in snow leopard conservation in Central Asia	
Association for Biodiversity Conservation of Kazakhstan (ABCK)	Key national conservation NGO. • Participation in the analysis of poaching and wildlife trade levels in Central Asia • Participation in the development of training materials and trainings for customs officers, border guards and wildlife inspectors on control of poaching and illegal wildlife trade in Central Asia • Organization of international collaboration of customs department in the Central Asia • Participation in integration of global snow leopard monitoring system in the biodiversity monitoring system of Kazakhstan • Development of international and inter-agency cooperation for protection of snow leopard populations in Sarychat/Northern Tien Shan Transboundary landscape • Integration of data on snow leopard key population and habitat in the system of regional socio-economic planning in Sarychat/Northern Tien Shan Transboundary landscape
Snow Leopard Foundation – Kyrgyzstan	• Participation in the analysis of poaching and wildlife trade levels in Central Asia • Participation in the development of training materials and trainings for customs officers, border guards and wildlife inspectors on control of poaching and illegal wildlife trade in Central Asia • Participation in integration of global snow leopard monitoring system in the biodiversity monitoring system of Kyrgyzstan
Association of hunters of Tajikistan	• Participation in the trainings for customs officers, border guards and wildlife inspectors on control of poaching and illegal wildlife trade in Central Asia • Providing basic data for national snow leopard monitoring system of Tajikistan
Private sector organizations	
Business companies (mining, development, tourism, others) in Central Asia	Participation in the Consortium of partners to establish a sustainable funding mechanism for Sarychat/Northern Tien Shan transboundary landscape • Participation in the development, approval and funding of targeted national portfolios of projects for snow leopard conservation in Central Asia • Support of GSLEP implementation • Participation in the Confederation of Industries for snow leopard conservation in Central Asia's countries • Participation in the development of sustainable land management measures and integration of them into local and regional development planning in Sarychat/Northern Tien Shan transboundary landscape
Hunting concessions in Central Asia	• Participation in the Consortium of partners to establish a sustainable funding mechanism for Sarychat/Northern Tien Shan transboundary landscape • Participation in the development, approval and funding of targeted national portfolios of projects for snow leopard conservation in Central Asia • Participation in the development of sustainable land management measures and integration of them into local and regional development planning in Sarychat/Northern Tien Shan transboundary landscape
Local communities in the Sarychat/Northern Tien Shan transboundary landscape	• Participation in the Consortium of partners to establish a sustainable funding mechanism for Sarychat/Northern Tien Shan transboundary landscape • Participation in the development of sustainable land management measures and integration of them into local and regional development planning in Sarychat/Northern Tien Shan transboundary landscape

Stakeholder	Anticipated Role in Project
Local level stakeholders in pilot landscape	
Regional Governments: Administration of Issyk-Kul Region (Kyrgyzstan) Administration of Almaty Region (Kazakhstan)	• Participation in the development of inter-agency and transboundary collaboration for control of poaching and illegal wildlife trade in Sarychat/Northern Tien Shan transboundary landscape • Participation in the Consortium of partners to establish a sustainable funding mechanism for Sarychat/Northern Tien Shan transboundary landscape • Participation in the development of sustainable land management measures and integration of them into local and regional development planning in Sarychat/ Northern Tien Shan transboundary landscape
Directorate of Issyk-Kul Biosphere Territory (Kyrgyzstan)	Regional governments and Directorate of Issyk-Kul Biosphere Territory will play leading and coordinating role in the realization of the planned project activities and their integration in the existing government programmes and plans at the regional and local levels.
Protected Areas: Sarychat-Ertash Nature Reserve (KG) Karakol National Park (KG) Chon-Kemin National Park (KG) Kyrchyn National Park (KG) Almaty Nature Reserve (KZ) Ile-Alatau National Park (KZ) Kolsay Kolderi National Park (KZ)	• Participation in the development of inter-agency and transboundary collaboration for control of poaching and illegal wildlife trade in Sarychat/Northern Tien Shan transboundary landscape • Participation in the Consortium of partners to establish a sustainable funding mechanism for Sarychat/Northern Tien Shan transboundary landscape • Participation in the development of sustainable land management measures and integration of them into local and regional development planning in Sarychat/ Northern Tien Shan transboundary landscape • Monitoring of snow leopard populations and ecosystems at regional level Protected Area staff in the project landscape will play key and leading role in the monitoring of snow leopard population and ecosystems. Also they will be key participants of inter-agency and transboundary agreements to control poaching and wildlife trade in the area. Protected Areas will be key planners of activities and implementers of the decisions of the Consortium of partners to establish a sustainable funding mechanism for Sarychat/Northern Tien Shan transboundary landscape. They also will make suggestion on the optimization and development of the Protected Area Network in the pilot landscape while developing of the regional sustainable land management measures.
Kumtor gold mining company (KG)	• Participation in the Consortium of partners to establish a sustainable funding mechanism for Sarychat/Northern Tien Shan transboundary landscape • Participation in the development of sustainable land management measures and integration of them into local and regional development planning in Sarychat/ Northern Tien Shan transboundary landscape Kumtor will represent a key business partner for the Consortium of partners to establish a sustainable funding mechanism for Sarychat/Northern Tien Shan transboundary landscape. The company will be a main donor of anti-poaching activities in the landscapes, as well as the developer of sustainable land management suggestions with balance between industry and conservation.
Hunting concessions in the transboundary landscape: 15 in Kyrgyzstan part 30-35 in Kazakhstan part	• Participation in the development of inter-agency and transboundary collaboration for control of poaching and illegal wildlife trade in Sarychat/Northern Tien Shan transboundary landscape • Participation in the Consortium of partners to establish a sustainable funding mechanism for Sarychat/Northern Tien Shan transboundary landscape • Participation in the development of sustainable land management measures and integration of them into local and regional development planning in Sarychat/ Northern Tien Shan transboundary landscape Hunting concessions will play active role in the anti-poaching agreements and cooperation. They are also potential donors for the activities of the Consortium of partners to establish a sustainable funding mechanism for Sarychat/Northern Tien Shan transboundary landscape. They will play main role in the development of the model of sustainable hunting in the pilot landscape with tangible benefits for local communities.

Stakeholder	Anticipated Role in Project
Border guard stations: 3 in Kyrgyzstan part 5 in Kazakhstan part	• Participation in the development of inter-agency and transboundary collaboration for control of poaching and illegal wildlife trade in Sarychat/Northern Tien Shan transboundary landscape Border guards are planned as a key member of anti-poaching brigades in the project area working in strong collaboration with wildlife agencies and Protected Areas.
Local communities: 8–10 villages in Kyrgyzstan part 10–12 – in Kazakhstan part	• Participation in the Consortium of partners to establish a sustainable funding mechanism for Sarychat/Northern Tien Shan transboundary landscape • Participation in the development of sustainable land management measures and integration of them into local and regional development planning in Sarychat/ Northern Tien Shan transboundary landscape Local communities will be key participants and beneficiaries of the Consortium of partners in the project landscape and main stakeholders in the sustainable land management in the SL habitat.

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