

CEPF Final Completion and Impact Report

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| Organization's Legal Name: | Panthera Corporation |
| Project Title: | Engaging communities to safeguard rural livelihoods and cultivate conservation partnerships in Kyrgyzstan |
| Grant Number: | CEPF-110812 |
| Hotspot: | Mountains of Central Asia |
| Strategic Direction: | 1 Address threats to priority species |
| Grant Amount: | \$150,000.00 |
| Project Dates: | December 01, 2020 - June 30, 2023 |
| Date of Report: | August 29, 2023 |

IMPLEMENTATION PARTNERS

M-Sayod, LLC, provided accounting and technical support in Tajikistan, and accommodations to staff during site visits, while also liaising with local communities, stakeholders and governments. They facilitated the hiring of consultants who contributed to the surveys in and around Zighar, and assisted with the procurement and delivery of construction materials to the village. M-Sayod rangers were trained in camera trapping, which they used for the Winter 2022-2023 survey, and which they will incorporate into annual wildlife monitoring going forward.

Ilbirs Foundation provided technical and logistical support and assistance in Kyrgyzstan, with responsibilities that included accounting, obtaining permits, and networking among dispersed stakeholders. Moreover, they provided staff to assist with technical aspects of the project, including occupancy and socioeconomic surveys and camera trapping.

Core Team: Altynai Adabaeva acted as co-lead in Kyrgyzstan, where she was responsible for project management, design, logistics, and analysis. Fatima Mannapbekova acted as the other co-lead there. She secured \$40K of additional project funding to facilitate research and outreach activities, including hiring surveyors and workshop facilitators (CAMP Alattoo), and the documentary film production team (Evgeny Chistyakov and Anisa Sabiri). Qobiljon "Kobil" Shokirov, first as Panthera's Tajikistan program director, then subsequently on contract with M-Sayod, served as lead for project activities in Tajikistan. Shannon Kachel, a Conservation Scientist in Panthera's Applied Science Group, provided technical leadership in the data-intensive aspects of the project, as well as project manager and oversight responsibilities within Panthera starting July 2022. Rana Bayraccismith served as project manager for the project until July 2022. Byron Weckworth, previously Panthera's Snow Leopard Program Director, provided oversight and leadership of the overall project until July 2022.

CONSERVATION IMPACTS

Planned Long-Term Impacts: 3+ years (as stated in the approved proposal)

| Impact Description | Impact Summary |
|--|---|
| <p>Understanding of ecology over 3.4 million hectares of viable snow leopard habitat will be improved through establishment of baseline data, leading to improved planning by stakeholders throughout the region.</p> | <p>Partially Achieved. As reported in Deliverable 1.4, using spatially-explicit local knowledge obtained via extensive interviews throughout Osh Province, Kyrgyzstan, we generated probabilistic maps of the occurrence of large- and medium-sized mammal species of varying conservation concern, particularly snow leopards and their primary prey, ibex, over an area >2.1 million hectares of potential snow leopard habitat. By statistically leveraging the wealth of information available for common species, we were able to infer the distributions of even rarely-detected species, establishing a baseline for planning future monitoring and research, and for evaluating changes to species' conservation status in the region. In most cases, suitable habitats for each species appear to be occupied, but negative anthropogenic effects were evident in the distributions of snow leopards, ibex and bears, highlighting the need for further conservation investment, sustained monitoring, and capacity-building in the region.</p> |
| <p>Improved management of 100,000 hectares of production landscape in Bartang through improved livestock husbandry and reduction in human-wildlife conflict, preventing injury, relocation, and/or retaliatory killing of up to 10 snow leopards annually.</p> | <p>CANCELLED</p> |

Planned Short-Term Impacts: 1 to 3 years (as stated in the approved proposal)

| Impact Description | Impact Summary |
|--|---|
| <p>Improved infrastructure and hygiene in pastures, and expanded economic opportunities and food security, via efforts designed and implemented to contribute to gender equity, will directly and indirectly benefit up to 93 households in Zighar, 150 households in Bartang, and 50 people in Murghab (via surveys).</p> | <p>Partially achieved. We improved infrastructure in pastures used by 104 households in Zighar through the construction of a large communal corral that will reduce livestock losses to snow leopards and other predators, and improve livestock nutrition, directly benefitting the affected people.</p> |
| <p>Improved management of 20,000 hectares of production landscape in Zighar for snow leopard conservation through improved monitoring, decision-making, and livestock and hunting concession management.</p> | <p>Achieved. Annual camera trap monitoring in and around Zighar and the M-Sayod concession, as outlined in Deliverable 9.2, will help to ensure that negative trends in the status of wildlife populations are detected early enough for meaningful conservation intervention.</p> |

| Impact Description | Impact Summary |
|--|--|
| 710 (110 households) women and men in Zighar and neighboring valleys (12,500 hectares) have improved economic stability from reduced livestock predation. | Achieved. We improved the economic stability of 104 households in Zighar through the construction of a large communal corral that will reduce livestock losses to snow leopards and other predators, and will improve livestock nutrition. |
| 150 families benefit from reduced risks to livestock and stabilized pasture resources over 30,000 hectares of snow leopard habitat in Murghab. | CANCELLED |
| A network of 40-60 individual and institutional stakeholders from Osh Oblast, representing over 11,500 people over 2 million hectares of snow leopard habitat, is created to better manage their production landscape for biodiversity conservation. | Achieved. We established an active network of 75 people across the snow leopard habitats of Osh Oblast to facilitate knowledge sharing and collaboration in managing pastoral (livestock grazing) landscape for biodiversity conservation. The network includes individual stakeholders and representatives of public sector agencies, protected areas, and civil society. |
| A network of 40-50 people from Bartang, representing 408 households over 100,000 hectares of snow leopard habitat, is created to better manage their production landscape for biodiversity conservation. | CANCELLED |
| A network of 50 people from Murghab, representing six villages and one private company over 300,000 hectares of critical high elevation rangeland habitat, is created to better manage their production landscape for biodiversity conservation. | CANCELLED |
| Improved management of 12,500 hectares of production landscape in Zighar and neighboring valleys, protecting 10 snow leopards, achieved through better livestock management. | Achieved. The large communal corral constructed in the traditional Spring/Autumn pastures for the village of Zighar will reduce livestock lost to predators while improving livestock nutritional status of the village's livestock, improving livestock management affecting 12,500 hectares of production landscape in the surrounding area. |

Unexpected impacts (positive or negative)?

Within the scope of our goal of enabling and capacitating conservation actors, our project yielded several impacts that were perhaps unexpected, but welcome.

For the Bek Tosot Community Conservancy, our project catalyzed a number of positive developments. First, the technical support afforded to Bek Tosot served as a motivating factor for the Conservancy leadership to recruit additional rangers to join their team, resulting in a 50% growth in the lead up to the training workshop in 2022 (COMPONENT 7). The camera trapping work also spurred the Conservancy's first steps towards public outreach and making their presence and existence more broadly known: unused footage and outtake clips from filming for COMPONENT 8 have found new life as social media reels on the Conservancy's newly formed social media accounts, while the ethical considerations of camera trapping led the conservancy to erect permanent "Camera trapping zone/No hunting" signs at road access points. Finally, donations raised at the Bishkek screening of

the production version of the documentary film centered on the rangers of Bek Tosot were used to purchase critical field gear for Bek Tosot's rangers.

Our project also led to unexpected environmental education and outreach impacts. First, while both deploying and retrieving camera traps in Chong-Alai, we (Altynai and Fatima) were invited to visit the Chak school (Jyrgal, the head ranger of Bek Tosot works as a teacher there), where we led impromptu environmental education activities for students. Second, as a direct result of the participatory workshops conducted in COMPONENT 1, Altynai and Fatima worked with Tolonbai Karimov, a ranger for the Department of Biodiversity, and successfully applied for a \$1500 grant to support training rangers in Osh Oblast to conduct classroom outreach programs to teach schoolchildren about biodiversity conservation in the region. The grant enabled them to develop a curriculum and accompanying materials, for one-day workshops and train five additional rangers on that curriculum. Ultimately this led to 60 separate school workshops over the course of 2022.

Finally, in 2022, in a parallel project on snow leopard genetics, we found conclusive genetic evidence of dholes (thought to have been extirpated from Central Asia by 1990) in Chong Alai. That evidence – a single scat – left many questions unanswered. It also came too late for us to ask more pointed questions about the species in the interviews conducted in COMPONENT 1. We did gather some suggestive comments volunteered by interview respondents that could indicate evidence for dhole; for example, “there are two different kinds of jackals – a brown one and a red one,” and, “the jackals are coming from China,” from multiple locations throughout Osh Oblast. We were prepared to ask more pointed questions about the species during the participatory workshops that followed. During the course of the workshop in Chong Alai, in particular, participants were explicit: one had definitely seen dholes – attacking chickens in Altyn Mazar – and was able to easily distinguish them from jackals in photographs. This second concrete piece of evidence suggests that the genetic data was not from some lone dispersing animal – it seems clear that there is need for further targeted research on the species in the Pamir-Alay region, and probably outreach as well (the species is superficially similar enough to jackals that it may be highly vulnerable to retaliatory killing).

PROJECT RESULTS/DELIVERABLES

Overall results of the project:

In Osh, in partnership with Ibirs, we conducted a series of semi-structured interviews and workshops with natural resource users, from which we established baselines for monitoring and understanding human-wildlife conflict (particularly livestock depredation by large carnivores; COMPONENT 1). This work allowed us to draw robust inference on the distribution and status of the entire community of large- and medium-sized mammals across 33,000 km² of habitat, including important corridors across the Turkestan and Pamir-Alay Mountains. In most cases, suitable habitats for each species appear to be occupied, albeit probably at low densities – negative anthropogenic effects were evident in the distributions of snow leopards, ibex and bears, highlighting the need for conservation investment, monitoring, and capacity-building in the region. Livestock depredation was not reported for snow leopards, counter to our expectations, but was common for wolves and jackals. Importantly, we gathered additional evidence that dholes, long thought to be extinct in Central Asia, are not only extant (as established in 2022 by a parallel project) but perhaps locally abundant in the Pamir Alay Range bordering China and Tajikistan.

Following the interview surveys, we conducted three participatory modelling workshops in Kara-Kulja, Alay, and Chong-Alai districts (COMPONENT 1). The aims were to foster awareness of wildlife conservation in the region, and to build and enable networks of local

conservation actors thereby enhancing collective capacity for conservation decision-making and action. Of the 75 participants, representing a diversity of roles including schoolteachers, hunters, rangers, herders, and farmers, fully one third were female. At least two actionable plans for human-centered conservation were developed by participants in each workshop; two of these – capacity-building for rangers and a documentary film aimed at increasing awareness of local conservation concerns, challenges, and actors – were subsequently developed into amended project activities (COMPONENTS 7 and 8). A third concept – environmental education in primary schools – led to a side project in which we helped a participant (a ranger) apply for and receive a third-party grant to support those activities. In post-workshop surveys, participants provided positive feedback on educational outcomes from the workshops that included topics on wildlife, especially the snow leopard, as well as the role of rangers and the importance of healthy ecosystems.

To capacitate the Osh ranger groups' technical abilities, and to understand and monitor the conservation status of snow leopards in the region, we conducted a 10-day workshop in Chong-Alai on camera trapping for wildlife monitoring and research for rangers from across the oblast (COMPONENT 7). The workshop included theoretical and field activities, with the goal of benefiting ranger capacity in the Bek Tosot Conservancy of Chong-Alai. The second goal, to facilitate knowledge-exchange and strengthen the network of conservation actors in Osh Oblast across sectors (public, civil society, etc.), led us to include rangers from other regions as well. Workshop participants deployed cameras throughout potential snow leopard habitats of the Bek Tosot Conservancy (c. 1700 km²) to assess snow leopard status. Over the course of the subsequent survey, cameras documented snow leopard presence and reproduction (i.e. cubs), underscoring the area's importance. We also detected lynx, gray wolf, brown bear, and ibex. We did not detect dhole, a formerly extirpated species that we hoped to document photographically based on interview evidence from COMPONENT 1. Camera traps will play an important role in Bek Tosot's ongoing wildlife monitoring and conservation efforts, and will be made available through equipment loans, to other ranger groups in Osh as well.

To raise awareness of local wildlife conservation in southern Kyrgyzstan, and to amplify local voices and perspectives there, we produced a 20-minute documentary film (COMPONENT 8). The film focuses on the efforts of the Bek Tosot Community Conservancy to protect wildlife, particularly snow leopards and ibex, in the Turkestan and Pamir-Alay ranges in Chong-Alai. Following a screening in Bishkek in May, the filmmakers are pursuing additional support to fund filming in Autumn 2023, with an eye towards a wider release of a 40-minute version of the film in May 2024. Though the film has yet to be distributed more widely, all involved, including the screening audience agree that incorporating the anticipated hunts of Autumn 2023 will be critical to telling a complete story.

In Darvoz, Tajikistan, we partnered with M-Sayod, to help secure a future for snow leopards (COMPONENTS 2 and 9). There, snow leopards rely on markhor and ibex, whose populations are actively protected by M-Sayod. Yet, the people of Zighar and other local communities are at least partially reliant on livestock for their livelihoods, giving rise to a cycle in which snow leopards indirectly supported by M-Sayod's work – kill insufficiently-protected livestock, and people retaliate by killing snow leopards. To disrupt this dynamic, and to boost the long-term social carrying-capacity for predators in Darvoz, we engaged with the people of Zighar to construct a communal predator-proof corral with enough capacity to shelter all the community's sheep and goats on the village's traditional Spring/Autumn pastures (COMPONENT 2). Bringing the community to a consensus on where to build (and how many corrals to build) required sustained stakeholder engagement and multiple iterations on our original plans, reflecting our commitment to responsive partnership with local communities. Moreover, relying on the community to volunteer in the

construction process led to repeated delays and miscommunications – volunteers did not finish construction of the corral until August 2023, after the close of the grant. The corral will help protect livestock from depredation and counteract malnutrition.

Also in Darvoz, we worked with M-Sayod to assess the status of snow leopards, lynx, wildcats and other wildlife in the territory of the hunting concession operated by M-Sayod (COMPONENT 9). Specifically, we taught M-Sayod's rangers how to use camera traps for ongoing monitoring to ensure that trends in the status of wildlife populations are detected early enough for meaningful conservation intervention. Cameras in the 2022-2023 survey, (set primarily to facilitate identification of individual snow leopards) detected all anticipated large- and medium-sized mammal species in the area, including snow leopard, lynx, wildcat, gray wolf, brown bear, and markhor. Compared to a similar effort in Winter 2013, the current results suggest – with sizeable uncertainty – that a substantial decline in snow leopard abundance and site use has occurred in the study region: we estimated a 70% decline in site use probability, and detected only two individuals in 2023, compared to six in 2013. This trend's causes – statistical noise/survey limitations or underlying population change – remain unclear. Future monitoring by M-Sayod will help resolve this uncertainty.

This grant supported projects in two countries that were repeatedly in violent conflict during the life of the project, hampering direct exchange within the project team. In late 2022 the core team met in Tashkent to facilitate deeper knowledge exchange and retention, and to distill lessons learned and future project concepts (COMPONENT 9). Owing to a diverse set of challenges, the scope of our project changed dramatically over its life. In addition to conservation needs articulated in sidelined components, we identified urgent needs/opportunities to understand and stabilize the status of dholes in the Pamir-Alay, to build and retain conservation capacity, and to foster greater environmental awareness throughout the region.

Results for each deliverable:

| Component | | Deliverable | | |
|------------------|--|--------------------|---|--------------------------------|
| # | Description | # | Description | Results for Deliverable |
| 1.0 | Osh Research and Community Capacity Building | 1.1 | Database of stakeholders in the area. | Complete |
| 1.0 | Osh Research and Community Capacity Building | 1.2 | Validated study design and survey methodology completed and surveyors trained in its use. | Complete |
| 1.0 | Osh Research and Community Capacity Building | 1.3 | Digitized field survey data and report. | Complete |
| 1.0 | Osh Research and Community Capacity Building | 1.4 | Probabilistic maps and model outputs of local distribution of priority species, HWC and influential landscape factors | Complete |
| 1.0 | Osh Research and Community Capacity Building | 1.5 | Report on Actors, Resources, Dynamics, and Interactions (ARDI) workshops, including agenda, materials, participants disaggregated by sex, and summary notes/next steps (30 men and 10 women expected at 2 workshops.) | Complete |
| 1.0 | Osh Research and Community Capacity Building | 1.6 | Database of key stakeholders who will participate in future processes | Complete |

| Component | | Deliverable | | |
|-----------|--|-------------|--|---|
| # | Description | # | Description | Results for Deliverable |
| 1.0 | Osh Research and Community Capacity Building | 1.7 | Report on findings, and implications and recommendations for future research directions and conservation priorities | Complete |
| 2.0 | Zighar Human-Wildlife Conflict (HWC) | 2.1 | Signed conservation agreement between Panthera, M-Sayod and Zighar Community | Complete. Given Panthera's failure to establish a legal entity in Tajikistan, we could not enter into any formal trilateral agreement directly. However, M-Sayod's status as a private business allowed for bilateral agreements between M-Sayod and Panthera, and between M-Sayod and representatives of the village of Zighar. |
| 2.0 | Zighar Human-Wildlife Conflict (HWC) | 2.2 | Report on completion of community corrals and three shepherd shelters with solar powered hot water, including pictures, dates of completion, exact locations, names of responsible or recipient parties, comments on adherence to agreements, and next steps | Partially complete. In response to stakeholders, the three corrals originally proposed were pared down to a single larger structure due a combination of rising material costs, declining volunteer labor capacity, and the community's strong preference that this communal resource should be built on communal land that cannot be privatized in the future. |
| 2.0 | Zighar Human-Wildlife Conflict (HWC) | 2.3 | Report on utilization of community corrals and shepherd shelters | Partially complete. Corral construction was delayed to Spring 2023, foreclosing the possibility of assessing utilization within the timeline of the grant. |
| 2.0 | Zighar Human-Wildlife Conflict (HWC) | 2.4 | M-Sayod wildlife monitoring protocol/plan and preliminary snow leopard population estimates and | |

| Component | | Deliverable | | |
|-----------|--|-------------|---|-------------------------|
| # | Description | # | Description | Results for Deliverable |
| | | | vital rates (DELETED PER AMENDMENT OF JULY 2022; NO FURTHER REPORTING REQUIRED) | |
| 3.0 | Bartang Valley Human-Wildlife Conflict (DELETED PER AMENDMENT OF JULY 2022; NO FURTHER REPORTING REQUIRED) | 3.1 | Signed conservation agreements between Panthera and three villages in Bartang Valley (Razuj, Visav and Darzhomj). (DELETED PER AMENDMENT OF JULY 2022; NO FURTHER REPORTING REQUIRED) | |
| 3.0 | Bartang Valley Human-Wildlife Conflict (DELETED PER AMENDMENT OF JULY 2022; NO FURTHER REPORTING REQUIRED) | 3.2 | Completed study/experimental design and initiated research plan for selected interventions (DELETED PER AMENDMENT OF JULY 2022; NO FURTHER REPORTING REQUIRED) | |
| 3.0 | Bartang Valley Human-Wildlife Conflict (DELETED PER AMENDMENT OF JULY 2022; NO FURTHER REPORTING REQUIRED) | 3.3 | Report on overall monitoring results of predators and human-wildlife conflict, including on development and use of mobile application for predator monitoring (including discussion of training, trainees disaggregated by gender, and next steps) (DELETED PER | |

| Component | | Deliverable | | |
|-----------|--|-------------|---|-------------------------|
| # | Description | # | Description | Results for Deliverable |
| 3.0 | Bartang Valley Human-Wildlife Conflict (DELETED PER AMENDMENT OF JULY 2022; NO FURTHER REPORTING REQUIRED) | 3.4 | Report on "predator-proof" improvements to up to 150 barns in up to 3 villages, including locations of barns, names of recipients (disaggregated by sex and appropriate demographic data), and next steps (DELETED PER AMENDMENT OF JULY 2022; NO FURTHER REPOR | |
| 3.0 | Bartang Valley Human-Wildlife Conflict (DELETED PER AMENDMENT OF JULY 2022; NO FURTHER REPORTING REQUIRED) | 3.5 | Report on perception/attitudes of community toward predators accounting for encounter and conflict rates documented by mobile app users (DELETED PER AMENDMENT OF JULY 2022; NO FURTHER REPORTING REQUIRED) | |
| 4.0 | Murghab Human-Wildlife Conflict and Pasture Management Intervention Research (DELETED PER AMENDMENT OF JULY 2022; NO FURTHER REPORTING REQUIRED) | 4.1 | Report on survey of Murghab District herders and hunting guides with regards to land use and wildlife conflict, including survey methodology and demographic details of informants. (DELETED PER AMENDMENT OF JULY 2022; | |

| Component | | Deliverable | | |
|-----------|--|-------------|--|-------------------------|
| # | Description | # | Description | Results for Deliverable |
| | | | NO FURTHER REPORTING REQUIRED) | |
| 4.0 | Murghab Human-Wildlife Conflict and Pasture Management Intervention Research (DELETED PER AMENDMENT OF JULY 2022; NO FURTHER REPORTING REQUIRED) | 4.2 | Report on human-wildlife conflict in Murghab, including detailed findings of survey results, analyzed data, maps, and interpreted results. (DELETED PER AMENDMENT OF JULY 2022; NO FURTHER REPORTING REQUIRED) | |
| 5.0 | Management of Ilbirs Foundation | 5.1 | Signed sub-grant agreement between Panthera and Ilbirs reflecting all CEPF contractual requirements | Complete |
| 5.0 | Management of Ilbirs Foundation | 5.2 | Final technical and financial report on work completed by Ilbirs | Complete |
| 5.0 | Management of Ilbirs Foundation | 5.3 | Baseline and final civil society tracking tool from Ilbirs | Complete |
| 5.0 | Management of Ilbirs Foundation | 5.4 | Baseline and final gender tracking tool from Ilbirs | Complete |
| 6.0 | Stakeholder engagement and Panthera capacity | 6.1 | Report on stakeholder engagement plan | Complete |
| 6.0 | Stakeholder engagement and Panthera capacity | 6.2 | Baseline and final gender tracking tool | Complete |
| 7.0 | Camera Trap Study in Osh | 7.1 | Report on camera trap ranger skills training, including agenda, training | Complete |

| Component | | Deliverable | | |
|-----------|---|-------------|---|-------------------------|
| # | Description | # | Description | Results for Deliverable |
| | | | materials, and name and sex of participants | |
| 7.0 | Camera Trap Study in Osh | 7.2 | Report on camera trap deployment, including locations of traps and names of people responsible for their use and care | Complete |
| 7.0 | Camera Trap Study in Osh | 7.3 | Report on camera trap study, including analysis of results, representative images, next steps for use of traps, and recommended conservation actions | Complete |
| 8.0 | Documentary Film | 8.1 | Electronic version, or links to website, of films | Complete |
| 8.0 | Documentary Film | 8.2 | Report on film distribution, including dates of screenings, recipients, and summary of reactions and next steps | Complete |
| 9.0 | Team building in Darvoz, Tajikistan. Camera trap (CT) deployment training for the Tajik rangers and CT deployment in Tajikistan | 9.1 | Report on knowledge sharing between Kyrgyzstan and Tajikistan components of the project. Overview of potential next project ideas for further capacity building in the region | Complete |
| 9.0 | Team building in Darvoz, Tajikistan. Camera trap (CT) deployment training | 9.2 | M-Sayod wildlife monitoring protocol/plan and | Complete |

| Component | | Deliverable | | |
|-----------|---|-------------|---|-------------------------|
| # | Description | # | Description | Results for Deliverable |
| | for the Tajik rangers and CT deployment in Tajikistan | | preliminary snow leopard population estimates | |

Tools, products or methodologies that resulted from the project or contributed to the results:

For full details of methods please refer to the electronic deliverables submitted under “Other Information.” Here we highlight some of the more noteworthy methods and products developed.

The interview-based wildlife occupancy study in Osh Oblast, conducted in COMPONENT 1, served as the basis of a manuscript (Deliverable 1.4) scheduled for submission to a peer-reviewed journal in Autumn 2023. There, we used a newly developed spatial latent factor multi-species occupancy model with Polya-Gamma data augmentation to accommodate residual correlations among species, imperfect detection, and spatial autocorrelation in our data. The multispecies nature of the approach not only allowed us to account for potential correlations among species, but also to draw inference for species that were only rarely reported – such as wildcat, manul, and argali. Given that the status of rare species is often particularly germane to conservation planning, we feel that this paper will provide an important demonstration for others to build on and learn from.

COMPONENT 8 supported the production of a 22-minute-long documentary film following the efforts of the rangers of Bek Tosot Community Conservancy (Deliverable 8.1). The filmmakers and the rangers agree that additional filming to take place in Autumn 2023 is crucial to telling a complete story, and now a 40-minute version of the film is scheduled for release in Spring 2024.

To assess the changes in snow leopard population status in Darvoz over the last 10 years (COMPONENT 9-Deliverable 9.2), we used a “stacked” occupancy model to statistically assess the difference in site use between our survey and a comparable survey conducted in 2013, treating survey year as a categorical variable on occupancy probability in this analysis. We intend to prepare this work into a short manuscript for peer-reviewed publication in Winter 2023-2024.

PORTFOLIO INDICATORS

| Portfolio Indicator Number | Portfolio Indicator Description | Expected Numerical Contribution | Expected Contribution Description | Actual Numerical Contribution | Actual Contribution Description |
|-----------------------------------|---|--|---|--------------------------------------|--|
| 1 | 15 Key Biodiversity Areas (KBAs), covering 600,000 hectares, have improved management | 20,000 | Improved management of 20,000 hectares of production landscape in Zighar for snow leopard conservation through improved monitoring, decision-making, and livestock and hunting concession management. | 40,000 | Improved management of 20,000 hectares of production landscape in Zighar (Tajikistan KBA24 - Darvaz) and another 20,000 hectares in Chong Alai (Kyrgyzstan KBA21 - Tuz) for snow leopard conservation through improved monitoring, decision-making, and livestock and hunting concession management. |
| 4 | 10 land-use plans or land-use management practices incorporate provisions for biodiversity conservation | 3 | Zighar, Bartang, Murghab | 2 | Zighar and Chong Alai (Bek Tosot Conservancy). Bartang and Murghab components were cancelled. |
| 5 | 5 partnerships and networks formed or strengthened among civil society, and with government and communities, to leverage complementary capacities and maximize impact in support of the ecosystem profile | 3 | Networks with 40-60 people in Batken, Bartang, Murghab | 1 | Osh (75 people). Batken component was shifted to Osh due to armed conflict. Bartang and Murghab components were cancelled. |
| 6 | At least 20 local organizations receiving CEPF | 1 | Ilbirs | 1 | Ilbirs |

| Portfolio Indicator Number | Portfolio Indicator Description | Expected Numerical Contribution | Expected Contribution Description | Actual Numerical Contribution | Actual Contribution Description |
|-----------------------------------|--|--|---|--------------------------------------|---|
| | grants demonstrate improved organizational capacity | | | | |
| 1.1 | Number of species to which threats are reduced | 1 | Snow leopard | 1 | Snow leopard |
| 2.1 | Number of hectares of KBA with improved management | 20,000 | Improved management of 20,000 hectares of production landscape in Zighar for snow leopard conservation through improved monitoring, decision-making, and livestock and hunting concession management. | 40,000 | Improved management of 20,000 hectares of production landscape in Zighar (Tajikistan KBA24 - Darvaz) for snow leopard conservation through improved monitoring, decision-making, and livestock and hunting concession management; Improved management of 20,000 hectares of production landscape in Tuz (Kyrgyzstan KBA21 - Tuz) for snow leopard conservation through improved monitoring and hunting concession management. |
| 2.3 | Number of KBAs without official protection status with improved management | 20,000 | Improved management of 20,000 hectares of production landscape in Zighar for snow leopard conservation through improved monitoring, decision-making, and livestock | 40,000 | Improved management of 20,000 hectares of production landscape in Zighar (Tajikistan KBA24 - Darvaz) for snow leopard conservation through improved monitoring, decision-making, and livestock and hunting |

| Portfolio Indicator Number | Portfolio Indicator Description | Expected Numerical Contribution | Expected Contribution Description | Actual Numerical Contribution | Actual Contribution Description |
|----------------------------|---|---------------------------------|---|-------------------------------|--|
| | | | and hunting concession management. | | concession management; Improved management of 20,000 hectares of production landscape in Tuz (Kyrgyzstan KBA21 - Tuz) for snow leopard conservation through improved monitoring and hunting concession management. |
| 3.2 | Number of local level land use plans that incorporate biodiversity conservation as a management objective | 3 | Bartang, Murghab, Zighar | 2 | Zighar and Chong Alai (Bek Tosot Conservancy). Bartang and Murghab components were cancelled. |
| 4.2 | Number of hectares of farming or grazing areas that incorporate biodiversity conservation into operations | 20,000 | Improved management of 20,000 hectares of production landscape in Zighar for snow leopard conservation through improved monitoring, decision-making, and livestock and hunting concession management. | 120,000 | Improved management of 20,000 hectares of production landscape in Zighar, and 100,000 in Chong Alai (Bek Tosot Conservancy) for snow leopard conservation through improved monitoring, decision-making, and livestock and hunting concession management. |
| 5.3 | Number of new networks or partnerships for conservation that are created and/or strengthened | 3 | Networks with 40-60 people in Batken, Bartang, Murghab | 1 | Network of 75 people in Osh |

| Portfolio Indicator Number | Portfolio Indicator Description | Expected Numerical Contribution | Expected Contribution Description | Actual Numerical Contribution | Actual Contribution Description |
|-----------------------------------|---|--|--|--------------------------------------|--|
| 6.1 | Number of local organizations that actively participate in conservation actions guided by the ecosystem profile | 1 | Ilbirs | 1 | Ilbirs |
| 6.2 | Number of local civil society organizations receiving grants that demonstrate improved organizational capacity | 1 | Ilbirs | 1 | Ilbirs |
| 6.3 | Number of local civil society organizations receiving grants that demonstrate improved understanding of and commitment to gender issues | 1 | Ilbirs | 1 | Ilbirs |

GLOBAL INDICATORS

Protected Areas

Protected areas that have been created and/or expanded as a result of the project. Protected areas may include private or community reserves, municipal or provincial parks, or other designations where biodiversity conservation is an official management goal.

| Name of Protected Area | WDPA ID* | Latitude | Longitude | Country | Original Total Size (Hectares) ** | New Protected Hectares *** | Year of Legal Declaration or Expansion |
|-------------------------------|-----------------|-----------------|------------------|----------------|--|---------------------------------------|---|
|-------------------------------|-----------------|-----------------|------------------|----------------|--|---------------------------------------|---|

*World Database of Protected Areas

**If this is a new protected area, 0 should appear in this column

*** This column excludes the original total size of the protected area.

Key Biodiversity Area Management

Key Biodiversity Areas (KBAs) under improved management—where tangible results have been achieved to support conservation—as a result of the project.

| KBA Name | KBA Code | Size of KBA | Number of Hectares with Improved Management |
|----------|----------|-------------|---|
| Tuz | KGZ21 | | 20,000 |
| Darvaz | TAJ24 | | 20,000 |

Production Landscapes

Production landscapes with strengthened management of biodiversity as a result of the project.

A production landscape is defined as a site outside a protected area where commercial agriculture, forestry or natural product exploitation occurs.

| Name of Production Landscape | Latitude | Longitude | Hectares Strengthened | Intervention |
|-----------------------------------|----------|-----------|-----------------------|---|
| Zighar | 38.11 | 70.44 | 20,000 | Camera-based wildlife (snow leopard) population status monitoring guidelines implemented. |
| Bek Tosot Conservancy, Chong-Alai | 39.59 | 71.99 | 100,000 | Camera-based wildlife (snow leopard) population status monitoring guidelines implemented. |

Benefits to Individuals

- **Structured Training:**

| Number of Men Trained | Number of Women Trained | Topics of Training |
|-----------------------|-------------------------|---|
| 22 | | Monitoring wildlife using remote cameras (14 men in Kyrgyzstan, 8 men in Tajikistan). |

- **Cash Benefits:**

| Number of Men – Cash Benefits | Number of Women – Cash Benefits | Description of Benefits |
|--|--|---|
| 320 | 390 | Indirect cash benefit through reduction of livestock losses to predators. |

Benefits to Communities

| | |
|--|---|
| View the characteristics column below with the following corresponding codes: | View the benefits column below with the following corresponding codes: |
| 1- Small Landowners | a. Increased Access to Clean Water |
| 2- Subsistence Economy | b. Increased Food Security |
| 3- Indigenous/ Ethnic Peoples | c. Increased Access to Energy |
| 4- Pastoralists / Nomadic Peoples | d. Increased Access to Public Services |
| 5- Recent Migrants | e. Increased Resilience to Climate Change |
| 6- Urban Communities | f. Improved Land Tenure |
| 7- Other | g. Improved Use of Traditional Knowledge |
| | h. Improved Decision-Making |
| | i. Improved Access to Ecosystem Services |

| Community Name | Community Characteristics | | | | | | | Type of Benefit | | | | | | | | | Country | Number of Males Benefitting | Number of Females Benefitting |
|----------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------------|-----------------------------|-------------------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | a | b | c | d | e | f | g | h | i | | | |
| Zighar | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Tajikistan | 320 | 390 |

Characteristics of "Other" Communities:

Policies, Laws and Regulations

| | | | |
|---|-------------------------|-----------------------|-------------------|
| View the topics column below with the following corresponding codes: | | | |
| A- Agriculture | E- Energy | I- Planning/Zoning | M- Tourism |
| B- Climate | F- Fisheries | J- Pollution | N- Transportation |
| C- Ecosystem Management | G- Forestry | K- Protected Areas | O- Wildlife Trade |
| D- Education | H- Mining and Quarrying | L- Species Protection | P- Other |

| No. | Name of Law | Scope | Topics | | | | | | | | | | | | | | | |
|-----|-------------|-------|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P |
| | | | | | | | | | | | | | | | | | | |

“Other” Topics Addressed by the Policy, Law or Regulation:

| No. | Country/ Countries | Date Enacted/ Amended | Expected impact | Action Performed to Achieve the Enactment/ Amendment |
|-----|--------------------|-----------------------|-----------------|--|
| | | | | |

Companies Adopting Biodiversity-friendly Practices

A company is defined as a for-profit business entity. A biodiversity-friendly practice is one that conserves or uses natural resources in a sustainable manner.

| Name of Company | Description of Biodiversity-Friendly Practice | Country/Countries where Practice was Adopted |
|---------------------------------|---|--|
| M-Sayod, LLC | Snow leopard monitoring plan enacted. | Tajikistan |
| Bek Tosot Community Conservancy | Snow leopard population monitoring enacted. | Kyrgyzstan |

Networks and Partnerships

Networks/partnerships should have some lasting benefit beyond immediate project implementation. Informal networks/partnerships are acceptable.

| Name of Network/Partnership | Year Established | Country/Countries | Established by Project? | Purpose |
|--|------------------|-------------------|-------------------------|--|
| Informal network of rangers, schoolteachers, herders, hunters, and other conservation actors across Osh Oblast | 2022 | Kyrgyzstan | Yes | Facilitate ongoing knowledge exchange among a diverse set of engaged conservation stakeholders, including rangers from various agencies, protected areas, and community conservancies, in addition to hunters, herders, farmers, teachers, and more, across Osh Oblast (Chon Alai, Alay, Kara-kulja, and Nookat districts), and incorporate biodiversity conservation into school curricula, pasture management, and hunting conservancy management. |

Sustainable Financing

Sustainable financing mechanisms generate funding for the long-term (generally five or more years). These include, but are not limited to, conservation trust funds, debt-for-nature swaps, payment for ecosystem services (PES) schemes, and other revenue, fee or tax schemes that generate long-term funding for conservation.

| Name of Mechanism | Purpose | Date Established | Description | Country/Countries | Project Intervention | Delivery of Funds? |
|-------------------|---------|------------------|-------------|-------------------|----------------------|--------------------|
|-------------------|---------|------------------|-------------|-------------------|----------------------|--------------------|

Globally Threatened Species

Globally threatened species (CR, EN, VU) on the IUCN Red List of Threatened Species, benefitting from the project.

| Genus | Species | Common Name (English) | Status | Intervention | Population Trend at Site |
|----------|---------|-----------------------|--------|--|--------------------------|
| Panthera | uncia | Snow Leopard | VU | Species monitoring initiated in Darvaz (M-Sayod Conservancy) and Chong Alai (Bek Tosot Conservancy); predator-proof corrals in Darvaz to reduce the threat of human-wildlife conflict arising from the | Unknown |

| Genus | Species | Common Name (English) | Status | Intervention | Population Trend at Site |
|--------------|----------------|------------------------------|---------------|---|---------------------------------|
| | | | | cycle of livestock depredation and retaliatory killing. | |
| Cuon | alpinus | Asiatic Wild Dog | EN | Strengthened evidence that the species is present and resident in Central Asia. Camera-based wildlife monitoring enacted in Bek Tosot has some limited, but important monitoring value for the species. (Prior to 2022, when we documented the presence of dholes in Chong Alai via non-invasive genetics in a parallel project, the species was thought to be extinct in Central Asia) | Unknown |

LESSONS LEARNED

Stakeholder engagement via household surveys, key informant interviews, and stakeholder workshops was key to many of the project's successes. Early stakeholder engagement allowed us to tap local ecological knowledge and socio-ecological perspectives to craft more effective activities, and to establish networks for ongoing communication. Maintaining continual stakeholder engagement via messaging apps, phone calls, and meetings allowed us to be responsive partners with the local communities that we worked with.

Though stakeholder engagement was a point of strength for the project, we also ran into challenges managing and maintaining realistic expectations among local stakeholders. At various times, community members and stakeholders were frustrated by the slow pace of the project and the limited flexibility in the project budget to direct funds in unanticipated directions. We were able to resolve these misunderstandings with simple, clear communication about our own capacity and mandates. Once we started providing stakeholders with regular updates (via messaging apps or phone calls) on the status of various project processes, these frustrations dissipated. In the future we would work to define our budgetary constraints and our mandate to focus on evidence-based cat conservation early and clearly.

Relying on local volunteers to achieve project goals slowed and delayed some of the project's activities. This was evident in multiple project components, including the stakeholder workshops in Osh, and camera trapping training in Chon Alai, but nowhere was it more challenging than in Zighar. There, we relied on the community to construct the predator-proof corral on a volunteer basis (although of course the corral itself offered real monetary value to the community). Over the life of the project the proportion of able-bodied villagers working as abroad as migrant laborers in Russia ballooned, reducing the volunteer pool substantially. This led to some repeated delays in order to accommodate volunteers' availability, and even contributed to the eventual decision to construct the corral with purchased cement blocks rather than local, volunteer-gathered stones, as there simply were not enough sets of hands available for the more intensive task of collecting stones.

Being responsive to stakeholders' perspectives, interests, and concerns meant that we had to repeatedly adjust and modify our plans. In particular, at the outset of the project, based on a prior series of household surveys, we had proposed constructing three corrals/shepherd shelters in the Zighar area. Once the necessary resources became available under the funded proposal (rather than merely hypothetical), the community was spurred to more deeply consider what would best serve their needs within our overall constraints (e.g., improving livestock management and economic stability by reducing snow leopard predation on livestock). Ultimately, the community determined that the best use of the available resources was to build a single large corral rather than several smaller ones. Past experience in similar projects tells us that an overly prescriptive approach that isn't flexible and responsive to community input can nominally get the job done faster, but risks failing with respect the intended impacts - hastily-constructed corrals built without adequate community input go unused if they don't meet stakeholders' needs. We're confident that accommodating slow-to-surface stakeholder perspectives will improve corral utilization relative to past projects, but in the future, we would articulate this planned flexibility more clearly with when defining quantitative targets.

Data-intensive aspects of our project relied alternatively on freelance surveyors or conservancy rangers to collect reliable data, but in some cases, the data collected were incomplete, and thus considerably reduced in value. For example, despite heavy emphasis on the importance of recording the GPS coordinates at camera trap sites, these data were

not recorded for several cameras each in both Chon Alai and Darvoz. In the future we would dedicate even more time to both theoretical and practical trainings for anyone poised to be responsible for collecting data. To even further ensure the integrity of data collected, we would consider establishing a mechanism of “certification” of conservancy rangers, without which they would not be cleared to set cameras.

Local champions were key to our project’s successes. For example, identifying and empowering particularly invested and engaged stakeholders helped us to build strong, active networks, to bring additional stakeholders into project activities and conversations, and to navigate local political and regulatory landscapes. We did however note that this approach was not without pitfalls, as it appeared to aggravate some underlying rivalries within some of the communities. In particular, the documentary filmmakers’ interests in certain local characters seemed to make others jealous, highlighting the sometimes hidden, but nonetheless real and complicated, political landscapes that stakeholders inhabit and which we hope to more fully understand in future projects.

Ensuring that expenses were tax compliant was a non-negligible challenge in remote areas of Kyrgyzstan in particular. Many of the “microenterprises” in the mountains of southern Kyrgyzstan - including the taxi drivers, horse renters, family stay guesthouses, grocery shops, and gas stations - on which our project activities relied, did not hold the required patents and could not provide the receipts needed to comply with the stringent accounting requirements for NGOs in Kyrgyzstan. Though we were able to adjust when necessary thanks to the flexibility of an additional line of funding that was made as an individual grant to one of the project co-leads, this constraint meant that we had to spend considerable time and energy finding purveyors who could provide adequate documentation.

SUSTAINABILITY/REPLICATION

Perhaps the most consequential challenge faced over the course of our project concerns not the project per se, but rather our efforts to put the enabling conditions in place to ensure the project’s sustainability – namely, to establish a permanent organization for our work in Tajikistan. We exhausted nearly every possible option to open first a local branch of our international organization, and then an independent local organization with which we could partner. Both efforts not only failed, in many cases we never even received official decisions or explanations from the agencies responsible for reviewing our petitions. Instead, at best we were offered off-the-record explanations, the reliability of which we could not and cannot verify. As a consequence, we were unable to carry out many of the activities originally envisioned. Through creative partnership with a private entity (M-Sayod, LLC), we were able to at least partially circumvent a bureaucracy in Tajikistan that in our experience appears plainly hostile to civil society organizations working in the wildlife conservation space. Nonetheless we ultimately focused our efforts in Tajikistan far more narrowly than we had originally proposed, out of necessity, but with the hope that doing so would render our project’s impacts more sustainable.

One of the obstacles encountered repeatedly was a lack of information and documentation on past wildlife conservation projects in the project areas, particularly for snow leopards. The lack of any central node or repository of information in the loose network of people, organizations, and entities that are or have been involved in snow leopard conservation at local scales, made it difficult to coordinate the impact of this project with that of others. For example, in the past decade various groups have built predator-proof corrals in GBAO, Tajikistan, but details are at-best difficult to locate and compile, leading to unnecessary

duplications of efforts and inefficient conservation. Finding such information is often effectively impossible. Even in Kyrgyzstan (where the Population Assessment of Snow Leopards of Kyrgyzstan ostensibly supports communication and knowledge sharing among various government and civil society groups engaged in snow leopard conservation and monitoring), efforts to understand past work were often fruitless. This is an issue that transcends scale: one of our explicit goals (within Osh specifically) was to build informal local networks among individuals from various communities, organizations and government agencies, with the hope that those connections can help enable and empower otherwise isolated conservation actors. Although formal networks such as the Snow Leopard Network exist on the international scale, there remains an acute network gap at the regional/national scale in Central Asia, as highlighted by the example of corrals in GBAO. Similarly, documentation of knowledge, data, and connections built by past (or ongoing) projects is often impossible to access, limiting opportunities for collaboration. We see abundant need and opportunity for more efficient knowledge-sharing and networking among different stakeholder groups, agencies, and organizations, despite many potential obstacles.

Fostering and retaining conservation capacity poses a particularly acute challenge to the sustainability of our projects results. As with challenges associated with disseminating and sharing conservation knowledge, this challenge is seen at multiple scales. For example, in Kyrgyzstan, young people from rural mountain areas are quick to move to big cities like Osh and Bishkek when the opportunity arises. And in Tajikistan, over the course of the project three would-be emerging conservationist leaders in whom we aimed to build capacity emigrated out of the country entirely. Though the specifics vary, we have collectively seen many early career conservationists in Central Asia choose not only to leave the conservation field, but to leave Central Asia altogether. There is an urgent need to reverse this flow, but we recognize that it starts in many cases with macroeconomics, and social, political, and cultural dynamics that can be difficult to influence.

In the face of these challenges, the baseline knowledge of the status of snow leopards and other species that we successfully established here will stand as an important benchmark for detecting future trends and for monitoring and evaluating the impact of future conservation action in the Turkestan and Pamir-Alay Mountains. By reporting straightforward, probabilistic metrics, we hope to ensure that these information products can be easily compared with results of future monitoring efforts. We also set the stage for those efforts to continue and to succeed sustainably in both Darvoz and Chon Alai, where there are devoted and concerted efforts to build the capacity of local ranger groups to conduct their own monitoring efforts in perpetuity.

ENVIRONMENTAL AND SOCIAL SAFEGUARDS/STANDARDS

See separate Safeguard Report.

ADDITIONAL COMMENTS/RECOMMENDATIONS

Although subgrantee materials (i.e., Agreements, Tracking Tools, and Final Reports) for M-Sayod were not listed as formal Deliverables in the Conservation Grants reporting portal, we have provided these materials as "Deliverables 2.4, 2.5, and 2.6" in the attached files.

ADDITIONAL FUNDING

| | |
|--|--|
| Total Amount of Additional Funding Actually Secured (USD) | \$55,000.00 |
| Breakdown of Additional Funding | Robert Kiyosaki Foundation \$15,000 counterpart funding. Andy Sabin Family Foundation \$40,000 counterpart funding. |

INFORMATION SHARING AND CEPF POLICY

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned and results. For more information about this project, you may contact the organization and/or individual listed below.

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