

Darwin Initiative: Final Report

To be completed with reference to the “Writing a Darwin Report” guidance: (<http://www.darwininitiative.org.uk/resources-for-projects/reporting-forms>). It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

Darwin Project Information

Project reference	22-044
Project title	Collaborative Conflict Management for Community Livelihoods and Conservation
Host country(ies)	Mongolia, Kyrgyzstan, Pakistan
Contract holder institution	University of Aberdeen
Partner institution(s)	Snow Leopard Trust, Centre for Ecology and Hydrology, Snow Leopard Conservation Foundation (Mongolia), Snow Leopard Foundation (Pakistan), Snow Leopard Foundation in Kyrgyzstan
Darwin grant value	265,914
Start/end dates of project	1 April 2015-31 March 2018
Project leader’s name	Stephen Redpath
Project website/blog/Twitter	https://www.snowleopard.org/darwin-initiative/
Report author(s) and date	Stephen Redpath, Justine Shanti Alexander, Juliette Young, Kulbhushan Suryawanshi, Siri Okamoto, Ajay Bijoor 30 June 2018

Note: please remove the blue guidance notes **from all sections** before submission.

Evaluation of projects: The Final Report is expected to act as a stand-alone document. It should not be necessary to refer to Annual Reports to obtain evidence of progress or impact. All Final Reports are reviewed by an independent M&E consultant. They will use your agreed application and logical framework (or the most recent approved logframe) as a basis of their review. Therefore it is important that you refer back to this document when writing this report. The review acts as an independent viewpoint of whether the project has made the impacts it states based upon the report and associated evidence submitted. Therefore it is highly recommended that you submit the means of verification listed in your logframe to support your assertions of progress. You may have already submitted this material with your Annual Reports but please re-submit since this Final Report is expected to act as a stand-alone document. When making statements of progress or impact please ensure you refer as much as possible to sources of evidence including the indicators and means of verification outlined in your project logframe.

Please note: Major changes in the logframe (e.g., Output and Outcome level changes) must be approved. You can do this through submission of a Change Request form which can be found here <http://darwin.defra.gov.uk/resources/>. Submission of changes to the project design in the

annual report does not constitute notification. Changes requiring formal approval include: a delay in project implementation causing underspends and carry forwards; staff changes (relating to CVs provided at application stage); changes in Outputs or Outcome; project termination. If not clear whether a change requires formal approval please check with Darwin-Projects@ltsi.co.uk.

Report format: This report should be sent in MS Word only (if you have concerns about layout you may submit a pdf but this is in addition to a Word version). If you have already answered a question in one section, do not repeat the information in another section, but refer back to the section number.

Each section contains questions to guide the completion of the report. Not all guiding questions have to be answered – Project Leaders should exercise judgement as to those most relevant to the project.

The assumption is that project partners will play an active role in writing the report.

Please remember that your report will be made public. If there are specific sections that you would like treated in confidence, please ensure these are clearly identified as we can remove sensitive material before posting on the website.

1 Project Rationale

This project built on long-term efforts by the Snow Leopard Trust (SLT) and partners to support pastoralist communities living with predators. In this Darwin Initiative project we sought to develop collaborative strategies to support rural livelihoods and snow leopard conservation in three mountainous regions of Asia: specifically, South Gobi, Mongolia; Hindu Kush-Pamir, Pakistan (Terich Valley, Hispar Hobar) and West Tien Shan Mountains, Kyrgyzstan (Figure 1). Building on this project and using the toolkits developed under this project, some additional work was also carried out with independent funding in Spiti, India and Sanjiangyuan, China.

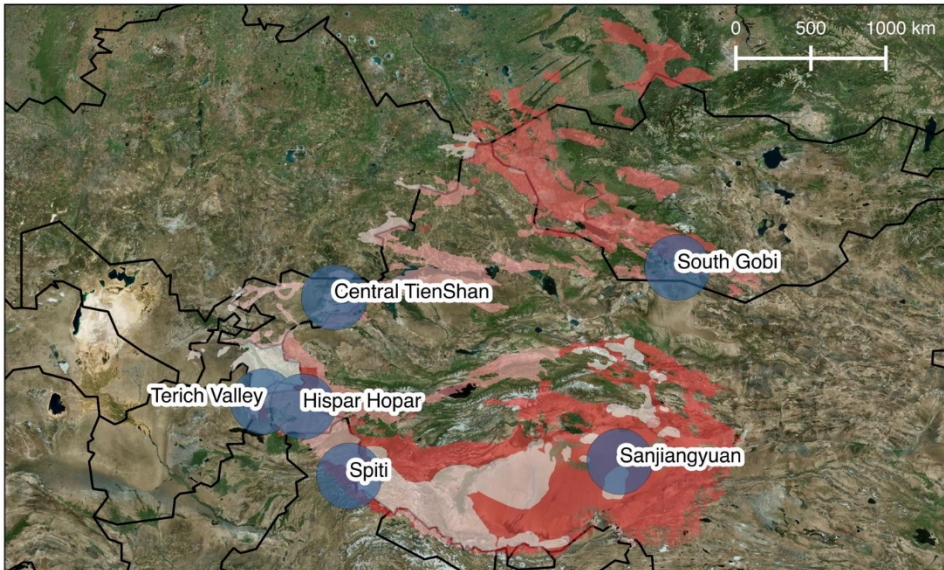


Figure 1. Map of study areas. Pink areas indicate predicted snow leopard distribution by the IUCN (white= definite; light pink= probable; red= possible).

Effective strategies that resolve conflicts between human livelihoods and biodiversity conservation are urgently sought. Large predators are particularly problematic as they are of high conservation interest but often have severe impacts on human livelihood. The endangered snow leopard of Central Asia exemplifies this problem. Across their 12-country range, snow leopards co-occur with herding communities inside and outside of protected areas. Annual per capita GDP varies from \$1155 - \$3673 and >40% of rural people live below national poverty lines. Average annual livestock depredation rates range from 3-13%, and >50% of these losses occur when animals are in poorly constructed corrals. Losses are often equivalent to up to one month's income.

Unsurprisingly, retribution killing of snow leopards is widespread, sometimes involving the illegal selling of snow leopard parts, and this killing represents a critical threat. In addition, wild ungulates, on which snow leopards depend, compete with livestock for forage, and are also killed for meat and sport. Previous work has shown that the abundance of snow leopards is strongly correlated with the abundance of wild ungulates, which are therefore critical to the long-term conservation of snow leopards.

Finding cost effective ways of enabling the coexistence of rural communities with large predators is extremely challenging. The value of community involvement for effective nature conservation is often emphasized in conservation policies and environmental rhetoric. Yet, in large parts of the world, wildlife conservation and management continues to be coercive and involve top-down state control, which is both morally questionable and often unsustainable over the longer term. There are limited field examples of robust, bottom-up models of wildlife conservation and conflict management that are based on deep community involvement.

This project sought to tackle these problems by empowering rural pastoralist communities in three mountainous regions of Asia to develop multi-pronged conservation schemes that would support the sustainable coexistence of herding communities with wild ungulates and predators. Through this project we worked with herder households to:

- 1) Reduce livestock losses through improved, predator-proof corrals. We provided designs and materials not available locally, communities provided labour.
- 2) Offset economic losses via insurance programmes. Households payed premiums into a community-managed fund for livestock they wanted to insure; elected committees investigated livestock kills and paid out claims. We supported them with training, norms and seed funding for insurance corpus.
- 3) Improve livelihoods via conservation-linked handicrafts. Building on women's wool/felting skills and traditional artistry, we trained them to meet international market standards. We set mutually-agreed base prices, guaranteed to purchase bulk orders and sold them in US markets.

In return, participants and community leaders signed "Conservation Contracts", agreeing to prevent the killing of snow leopards and wild ungulates on their lands.

To implement these programmes, we identified and recruited 'Champions' from within all communities to support the initiatives, and we designed and developed training for field implementers, and for engaging with communities. Field implementers held meetings with community members and councils to encourage uptake of combined programmes, and support initiatives.

We tested the effectiveness of our programmes on the income and attitudes of herders. We expected multiple initiatives in a given community to be more effective than standalone ones because they provide multiple benefits and involve more people, including women, whose attitudes are more negative towards predators than men. We also initiated long-term monitoring of snow leopard and wild ungulate abundance in landscapes where we work vs. control landscapes.

2 Project Partnerships

A formal MoU was signed between University of Aberdeen (UoA), SLT and the Centre for Ecology and Hydrology (CEH); SLT signed as representative of in-country partners SLF, SLCF and SLFK. The demand stemmed from the long-term work of SLT and partners and this partnership grew out of a long-term collaboration between Redpath (UoA) and Mishra (Science and Conservation Director of SLT) and a shared interest of all partners to improve our collective understanding of the impact of community-based conservation on livelihoods and conservation. Community-based conservation is a core part of the mission of SLT, SLCF, SLF, and SLFK and therefore this project is important to their long-term strategies. This project has represented a true and equal partnership throughout the project, from initial design, through development of research tools to the analysis and this final report.

We have held regular skype and face-to-face meetings to discuss the project over the three years. During meetings, we reviewed progress against the logframe, collaborated on the protocols, training agenda, toolkit development and implementation plan and reviewed milestones and next steps. SLCF, SLF, and SLFK oversaw implementation of the project on the ground, e.g. selection of representative vs control regions, selecting champions, collecting data, etc. They provided feedback on survey protocols and on trainings. In person meetings over the years included: Redpath, Mishra, Snell Rullman with Mongolian team 30th May – 17th June 2015; Mishra with Pakistan & Kyrgyzstan teams Sept 3-8, 2015; Redpath spent time with Mishra and others in SLT in India (24/07/16 – 14/08/16) to discuss project planning, initial development of questionnaires and data management. Project planning and development were then developed in a team workshop in Ulaanbaatar, Mongolia 4-11th March 2017 (Annex 7.1: UB meeting photos). The project leaders in each country (Mongolia, Kyrgyzstan & Pakistan) were present for the whole workshop, along with Young (CEH, Edinburgh) to discuss, provide feedback and finalise the questionnaires and the planning for the coming year. During meetings, we reviewed progress against the logframe, collaborated on the protocols, training agenda, toolkit development and implementation plan and reviewed milestones and next steps. SLCF, SLF, and SLFK were very engaged in the project. As a result of this Darwin project, Redpath hosted 3 members of the Pakistan team at Aberdeen (Hussain Ali 25/03/16 – 22/04-16; Kabir Mohammed & Shoaib Sardar 02/05/16 – 18-10-16).

We held a final team workshop in Bishkek, Kyrgyzstan 19-23rd March 2018 (Annex 7.2: Bishkek meeting photos). The project leaders in each country (Mongolia, Kyrgyzstan & Pakistan) were present for this workshop, along with Redpath (UoA), Young (CEH) and members of Snow Leopard Trust's Science team, including Alexander (SLT), Suryawanshi (SLT), Mishra (SLT), and Sharma (SLT). The workshop aimed to gather updates and insights from each country, and ensure we had all the relevant and agreed data and evidence to complete the Darwin grant. During the meeting we established measures of performance for each conservation initiative, standardized monitoring tools and data collection to better assess impact. The meeting also provided the opportunity to work collectively on the final report, where country project leaders provided insights on their experience over the last three years working with the Darwin projects. Country team members verified the quality of the data collected from the questionnaire surveys, summary data and collectively summarized the Darwin project's innovations and the challenges faced. The final report was finalized through a collaborative process- where the initial draft was prepared by Redpath (University of Aberdeen) and Alexander (SLT), following contributions team members, including Okamoto (SLT), Suryawanshi (India team leader), Young (CEH, Edinburgh), Mishra (SLT), Bijoor (India team), Agvaansteren (Mongolia team leader), Jumabay (Kyrgyzstan team leader) and Nawaz (Pakistan team leader).

Achievements and Strengths. The partnership has gone from strength to strength. There has been a shared vision, an excellent rapport between the partners and an increasing sense of trust. The partnership has provided added benefits. First, it was notable that in our two workshops in Mongolia and Kyrgyzstan, we were also joined by field teams from China and India, who extended the work of Darwin to high mountain communities in those countries. This has provided considerable additional understanding of the effectiveness of the interventions. Second, the Darwin Initiative projects also led to the development of SLT's monitoring and evaluation framework, which will contribute to finalizing a monitoring toolkit for community conservation schemes in snow leopard range countries. Field teams, with support of the Snow Leopard Trust, will continue to work together in operationalizing this toolkit over the next year. Thus we see partnerships growing even stronger into the future.

Challenges: Working across very diverse cultures and languages within and between different countries has proved a challenge (albeit a positive one). For example, even simple terms like “community” had to be carefully weighed and translated to make this project—and data collection—workable. These challenges again arose when we discussed the design of our questionnaire, with which we needed to capture the attitudes of local people in these different settings. The result of these challenges was much greater understanding and appreciation for the unique human environments each team works in, insights into cultural variation, as well as common understanding and vocabulary on critical issues previously unresolved. These discussions will strengthen our long-term ability to affect positive change.

3 Project Achievements

3.1 Outputs

Output 1--Conservation contracts signed with 47 communities through participatory methods, with >11 communities engaged in multiple programmes. ACHIEVED.

INDICATOR 1: >25 additional corrals built, protecting 9,000 livestock by yr 3, over baseline of 14 corrals protecting 5,400 livestock

A total of 28 new predator-proof corrals were built by YR3 (10 new corrals built in YR2 in Mongolia, 4 new corrals built in YR2 and YR3 in Pakistan; 14 new corrals built in YR3 in Kyrgyzstan), up from 14 at baseline YR0. (Annex 7.3: Corral, and Annex 7.4a Project Dataset columns AD-AG). A total of 14 communities were involved in the corral scheme (6 in Mongolia, 6 in Pakistan and 2 in Kyrgyzstan Annex 7.4a Project Dataset columns F-I). The corrals held 7,575 new livestock by YR3, slightly less livestock than anticipated (Annex 7.5: Livestock and depredation losses).

INDICATOR 2: >4 additional communities insuring 6,500 additional livestock by yr3, over baseline of 8 insuring 5,000 livestock

By the end of YR3, 5 new communities (1 Mongolia, 4 Pakistan) initiated livestock insurance programmes; resulting in a total of 13 communities from a baseline of 8. By YR3 a total of 12,980 livestock (8598 additional livestock) were insured in these 12 communities. In Mongolia a total of 10,468 livestock (6825 additional livestock) were insured in YR3 (up from 3643 livestock in YR1). In Pakistan by the end of YR3 a total of 2512 livestock (1773 additional livestock) were insured (up from 739 livestock in YR1) (Annex 7.6 Livestock Insurance).

INDICATOR 3: 390 households in 36 communities expected to engage in handicrafts by yr3, over baseline of 315 households in 32 communities.

By the end of YR3, 416 participating household members including those from 5 new communities (2 Mongolia, 3 Pakistan) had initiated handicraft programmes in line with our expectations. 35 communities are taking part in handicraft schemes (28 Mongolia, 4 Pakistan, 3 Kyrgyzstan), from a baseline of 30 (Annex 7.4a Project dataset YR1-YR3 columns N-Q). NB our baseline changed from 32 to 30 in 2018 as a result of further refinements of our definition of communities (see Section 6).

INDICATOR 4: Nine new and 38 updated conservation contracts signed for 47 communities, by yr 2.

By the end of YR2, we were working with 47 communities (Mongolia 34, Pakistan 10, Kyrgyzstan 3). The contracts were renewed during YR3. See the summary data set (Annex 7.4a Project dataset YR1-YR3) and example evidence of contracts over the three years (Annex 7.7-7.9 Conservation Contracts).

INDICATOR 5: >11 communities engaged in multiple programmes by 2018

By the end of YR3, 15 communities were engaged in multiple programmes (Annex 7.4a Project dataset YR1-YR3)

Evidence for Output 1:

- Annex 7.3 Corral
- Annex 7.4 Project dataset YR1-YR3

- Annex 7.5: Livestock and depredation losses
- Annex 7.6 Livestock Insurance
- Annex 7.7-7.9 Conservation Contracts

Output 2--An assessment of the effectiveness of conservation initiatives on livestock losses, household income and attitudes towards interventions, predators and ungulates, including regional and gender effects. ACHIEVED

INDICATOR 1: Effectiveness of predator-proofed corrals on livestock losses analysed in yr 3.

Effectiveness analysed (Annex 7.5: Livestock and depredation losses). No losses occurred in SLT predator-proofed corrals, compared to an average of 1.8 per year in traditional corrals. Similarly, representative communities that had predator-proofed corrals also suffered less livestock depredation than communities with no predator-proof corrals (Annex 7.5: Livestock and depredation losses).

INDICATOR 2: Effectiveness of livestock insurance programmes on payouts and household income analysed in yr 3.

By YR3 a total of 13 communities participated in insurance schemes (7 communities, 221 households for Pakistan; 6 communities, 57 households for Mongolia).

In Mongolia by YR3 a total of 57 households participated in the insurance scheme insuring a total of 10468 livestock. In YR3 the insurance fund was \$6886. All insurance claim payouts were received within the given year. Mongolia paid out claims all three years of the project, \$891 in 2015, \$697 in 2016, \$687 in 2017. Number of households paid out to in each year was 27, 15 and 31 respectively for avg. of \$34 per household, if equalized across households. Average pay-out per household being equivalent to 1% of Mongolia's GDP per capita (Mongolia GDP per capita was \$3686 in 2016). Note: Because of cultural sensitivities it was inappropriate to collect data on individual household income; therefore, we chose to compare to national averages instead.

In Pakistan by YR3 a total of 221 households participated in the insurance scheme insuring a total of 2512 livestock. In YR3 the insurance fund was \$22,153. No insurance claims were paid out to participating households so far. The insurance programs were put into place, with the agreement of the communities, that insurance claims would be paid after two years (to let the funds accumulate) and so the claims will be paid in 2018 (Annex 7.6: Livestock Insurance).

INDICATOR 3: Effectiveness of handicraft scheme on household income analysed in yr 3.

Handicraft schemes supported 416 participating household members, paying an average of \$151 per member per year with bonus (Annex 7.4a Project dataset YR1-YR3). The USD worth of SLE products was \$45284, \$49563 and \$41851 each year respectively (Annex 7.4a Project dataset YR1-YR3) and were distributed back to the participating households. Bonuses were also distributed back to households equivalent to \$9205, \$8442 and \$7493 each year. Average payouts per household (including bonuses) were on average equivalent to 4%, 2% and 26% of national GDP for Mongolia, Pakistan and Kyrgyzstan respectively.

INDICATOR 4: Effectiveness of interventions on attitudes towards interventions, wild ungulates and snow leopards by men and women in communities analysed in yr 3

Effectiveness analysed. In relation to snow leopards, we found that gender, age and education were significantly associated with attitudes towards snow leopards. Men, the well-educated and younger people reported significantly more positive attitudes towards snow leopards. Respondents who were involved in a conservation scheme reported significantly lower intentions to kill snow leopards than those in no schemes. Respondents involved in two or more schemes showed a tendency to report lower intentions to kill snow leopards, although this was not statistically significant. (Annex 8.1a: Attitudes; Annex 8.1b: The effectiveness of snow leopard conservation initiatives).

People held very positive attitudes towards wild ungulates and we were unable to detect improvements in attitude with interventions. In contrast to the situation for snow leopards, we found that men had less positive attitudes towards ungulates than women (Annex 8: Ungulates, interventions and attitudes).

Evidence for Output 2:

- Annex 7.4a: Project dataset YR1-YR3
- Annex 7.5: Livestock and depredation losses
- Annex 7.6: Livestock Insurance

- Annex 8. Ungulates, interventions and attitudes
- Annex 8.1a: Attitudes
- Annex 8.1b: The effectiveness of snow leopard conservation initiatives

Output 3--Training delivered for field implementers and meetings held with community champions. ACHIEVED

INDICATOR 1: Training of 13 field implementers from SLCF, SLFP and SLFK in negotiation and community engagement skills increased sensitivity towards respectful community engagement and retention of information in YR 3.

A total of 37 field implementers in Mongolia, Pakistan and Kyrgyzstan were trained in negotiation and community engagement skills by YR3—17 from Pakistan, Mongolia and Kyrgyzstan (Annex 8.2: Partner Principle Training; Annex 8.3 Training Summary). All trainees are nationals from Mongolia, Pakistan, India, China, and Kyrgyzstan, and 21 (12 India, 7 Mongolia, 1 Pakistan, 1 Kyrgyzstan) are women (Annex 8.2: Partner Principle Training).

The training toolkit (Annex 8.4: Field Implementers Toolkit) was built by Young at CEH, with support from SLT and UoA and based on a document called 'PARTNERS Principles for Community Engagement.' (Annex 8.5: Partner Principles).

INDICATOR 2: 47 respected community conservation champions are actively engaged in dialogue with communities by end of YR 2

In YR1 we identified a total of 39 local champions (17 Mongolia, 9 Kyrgyzstan, 13 Pakistan) across all three project countries. As of the end of YR2 this was up to 42 (Annex 8.6 Local Champions). We identified and worked with Champions in all communities and so consider this indicator as achieved. Some Champions covered more than one nearby community and these people were selected because they were respected by all relevant communities. This explains why there are fewer champions than communities and we were slightly shy of target.

Evidence for Output 3:

- Annex 8.2: Partner Principle Training;
- Annex 8.3: Training Summary
- Annex 8.4: Field Implementers Toolkit
- Annex 8.5: Partners Principles
- Annex 8.6: Local Champions

Output 4-- An assessment of the impact of conservation initiatives on abundance of wild ungulates and snow leopards. PARTIALLY ACHIEVED.

In YR1 and YR3 we completed snow leopard abundance surveys in control and representative sites, and completed wild ungulate surveys in control and representative sites. Over YR1-YR3 we also have monitored poaching incidents.

INDICATOR 1. Attitudes towards predators and wild herbivores will be more positive in participating households and communities by yr 3.

In line with our prediction, people involved in conservation initiatives were found to have more positive attitudes towards snow leopards than those not involved. Moreover people involved in a conservation scheme also reported significantly lower intentions to kill snow leopards than those in no schemes. Respondents involved in two or more schemes showed a tendency to report lower intentions to kill snow leopards, although this was not statistically significant. In contrast to our prediction we were unable to detect an effect of interventions on attitudes towards wild ungulates. Attitudes towards these species were high anyway, so the likelihood of detecting a significant improvement in attitudes was low. (Annex 8: ungulates, interventions and attitudes; Annex 8.1b: The effectiveness of snow leopard conservation initiatives)

INDICATOR 2. Triangulated reports indicate that killing of wild ungulates and snow leopards stops in communities with conservation contracts by YR 3.

There were no reports of snow leopard poaching around our representative communities in any of the 3 years (Annex 8.7: Poaching report summary). However, one snow leopard was killed in a control community with no conservation contracts in YR2 (Annex 8.8b).

There were no reports of wild ungulates killed around our representative communities in any of the 3 years in Mongolia. However, in Pakistan, two wild ungulates were recorded poached in YR1 and YR2 (Annex 8.8a; Annex 8.8b). In Kyrgyzstan one ungulate (argali) was reported killed in YR3 (Annex 8.8c Poaching Reports Yr3). Therefore it seems that poaching of snow leopard stops in communities with conservation contracts (compared to those without), but this is not true for poaching of wild ungulates, which has continued at a low level.

INDICATOR 3. Indices of abundance of snow leopards in the sampled programme landscapes are stable or higher in yr 3 than yr1 and higher compared to estimates from control landscapes in yr 3.

As a result of Darwin we started snow leopard abundance surveys in a number of new sites, using camera traps. Snow leopard and ungulate abundance surveys were completed in Mongolia, Pakistan and Kyrgyzstan, covering a total of 6 different sites (Annex 8.9; Annex 9: Sample maps).

Initial results suggest that snow leopard abundance is greater in the representative landscapes for Kyrgyzstan and Pakistan (Annex 8.9). In Mongolia and India (additional data), the data suggest a stable population of snow leopards, with similar estimates in our control and representative landscape. A clear picture of differences between landscapes can only be expected to emerge after several years of data collection.

Snow leopard surveys were not completed in Pakistan in year 3 because of delays in getting permission to set up cameras in a politically sensitive part of the world. However, cameras were finally set up in Hoper-Hispar in April 2018, but they will only be collected in the first week of July 2018. In Kyrgyzstan, the snow leopard surveys were completed, but these data are still being analysed. Snow leopard individual identification took longer than expected as we had to deal with the problems identified by new research, which suggests challenges in accurately identifying individuals (A publication is in prep about this- Johansson, O, Samelius, G, Wikberg, E, Chapron, G., Mishra, C., Low, M. *In Prep*. Overestimates of large carnivore populations from camera-trap monitoring). We thus have 3 observers repeat the individual ID process in order to increase the accuracy of our work- this however takes time. Some further difficulties were encountered in data collection and analysis, which are discussed in Section 6.1.

Evidence for Output 4:

- Annex 8: ungulates, interventions and attitudes
- Annex 8.1b: The effectiveness of snow leopard conservation initiatives
- Annex 8.7: Poaching Report Summary
- Annex 8.8: Poaching reports
- Annex 8.9: SL and ungulate survey results
- Annex 9: Sample Maps

Output 5 -- *Communication with Snow Leopard network, CBD and GSLEP representatives and the wider conservation community.* PARTIALLY ACHIEVED

INDICATOR 1 Working paper outlining effectiveness of interventions on losses, income and attitudes incorporated into SLCF, SLFP, SLFK strategic planning and distributed to Snow Leopard Network and appropriate CBD and GLSEP contacts by yr 3

Working paper completed and has been shared with the teams. Once it is finalized it will be shared with CBD, SLN and GSLEP contacts. The delays in permits led to delays in the analysis and further development of the manuscript – See section 6 (Annex 8.1: The effectiveness of snow leopard conservation initiatives).

INDICATOR 2 Manuscripts prepared on effectiveness of interventions on losses, income and attitudes by yr 3.

A draft manuscript looking at the effectiveness of interventions has been prepared that introduces the findings as highlighted above. We are awaiting final data on snow leopard population estimates which has been delayed as outlined above (Annex 8.1: The effectiveness of snow leopard conservation initiatives).

INDICATOR 3 Best practice in conservation interventions shared with international field teams yr 3

At the final Darwin Bishkek meeting in April 2018 all Darwin partners and country directors discussed best practices for community conservation interventions. We discussed how we can improve the effectiveness of programs and what works in each respective country (Annex 7.2: Bishkek meeting photos).

Evidence for Output 5:

- Annex 8.1: The effectiveness of snow leopard conservation initiatives
- Annex 7.2: Bishkek meeting photos

Note: For challenges faced please see Section 6: Lessons learned.

3.2 Outcome

OUTCOME: Participatory interventions in 47 communities reduce livestock losses, insure against predation, increase household income and improve attitudes, leading to stable/increased snow leopard abundance and improved understanding for conflict management.

Progress towards Outcome:

We successfully completed the Outcome and have reached our intent of having participatory interventions in 47 communities. These interventions, as planned, reduced livestock losses, insured livestock, increased household income, improved attitudes and reduced the intention to illegally kill snow leopards. We have baselines against which to assess change in attitudes and biological indicators. We believe that by the end of this project we have greatly improved understanding of conflict management.

Progress towards Outcome Indicators:

		Baseline Condition	Progress to Date	Evidence
Indicator 1	By 2018, at least 25 new corrals will be predator-proofed, protecting up to 9,000 additional livestock from predation for a total of at least 39 corrals and up to 14,400 livestock protected.	14 corrals	28 new predator proof corrals built (Total to date: 42 predator proof corrals) 7564 additional small livestock and 11 large livestock protected.	<ul style="list-style-type: none">• Annex 7.4 Project dataset YR1-YR3• Annex 7.5: Livestock and depredation losses• Annex 9.1d Corral data All Countries YR1• Annex 9.2b Corral all countries YR3
Indicator 2	By 2018, at least 4 new insurance programmes will insure up to 6,500 additional livestock to compensate for losses to carnivore predation, for a total of 12 insurance programmes.	8 insurance programme communities	5 new insurance programs (total of 13 programs) A total of 12,980 livestock were insured in these 13 communities.	<ul style="list-style-type: none">• Annex 7.4 Project dataset YR1-YR3• Annex 7.6 Livestock insurance

Indicator 3	By 2018, at least 4 new community handicraft schemes will be developed, increasing average income of up to 75 new participating households by up to US\$440 pa for a total of 36 communities.	315 households in 30 handicrafts scheme communities	5 new communities added for a total of 35 handicraft schemes, with 164 participating household members. Average income including bonuses was \$151 per household per year. This average income per household varies between countries and in Kyrgyzstan reached up to \$316 per household per year.	<ul style="list-style-type: none"> Annex 7.4a Project dataset YR1-YR3 Annex 7.4b Project dataset Mongolia YR1-YR3 Annex 7.4c Project dataset Kyrgyzstan YR1-YR3 Annex 7.4d Project dataset Pakistan YR1-YR3 Annex 9.3 SLE Purchase sheet samples
Indicator 4	By 2018, attitudinal surveys will indicate that both men and women will be more positive towards interventions, predators and wild ungulates in communities with conservation contracts compared to communities with no interventions, and in communities with multiple interventions compared to single ones.	Baseline and YR3 survey data collected and analyzed	Draft publication indicates that men consistently have more positive attitudes than women, that attitudes improve with interventions and that attitudes are higher with multiple interventions (marginally significant).	Annex 8.1b: SL :The effectiveness of snow leopard conservation initiatives
Indicator 5	By 2018, evidence will indicate that illegal killing of wild ungulates and snow leopards in communities with interventions will stop.	Monitoring from YR1-YR3	Monitoring from YR1-YR3 indicate no poaching of SL in intervention communities There was evidence of poaching wild ungulates in two communities in Pakistan and one community in Kyrgyzstan	<ul style="list-style-type: none"> Annex 8.9 SL and Ungulate survey results Annex 9 Sample Maps Annex 8.7a Munkhkhairkhan Park letter 2015 Annex 8.7b Photos of poachers Kyrgyzstan 2015 YR1 Annex 8.8- Poaching Reports
Indicator 6	By 2018, abundance of wild ungulates and snow leopards will be higher in 3 landscapes with participating communities relative to 3 paired control landscapes.	YR1 and YR3 data collected across experimental and control landscapes	YR1 and YR3 data collected across experimental and control landscapes. Snow leopard surveys were not completed in Pakistan in year 3 because of delays in getting permission to set up cameras in a politically sensitive part of the world.	<ul style="list-style-type: none"> Annex 8.9- SL and Ungulate survey results

			A clear picture of differences between landscapes can only be expected to emerge after several years of data collection. Initial results suggest that's abundance of snow leopards are greater in the representative landscapes for Kyrgyzstan, India and Pakistan. In Mongolia data suggests a stable population of snow leopards in our control and conservation sites.	
Indicator 7	By 2018, the impact of conservation interventions on income, attitudes and snow leopards will be assessed and shared the wider community.	Baseline & survey data collected and analysed	A draft has been produced and shared with country Directors.	<ul style="list-style-type: none"> • Annex 8: Ungulates, interventions and attitudes • Annex 8.1a: Attitudes • Annex 8.1b: The effectiveness of snow leopard conservation initiatives

3.3 Impact: achievement of positive impact on biodiversity and poverty alleviation

Our higher level impact statement was **“Poverty of rural herders and threats to biodiversity are reduced in snow leopard regions of Mongolia, Pakistan and Kyrgyzstan through collaborative conservation programmes.”**

We strived to achieve this through the provision of:

Livestock insurance programmes (financial repayment for livestock lost to predation),
 Predator-proof corrals (reduction of livestock losses), and
 Conservation handicraft schemes (payment for sales of wool products).

Insurance.

The Insurance scheme has an impact of poverty alleviation by mitigating financial losses related to livestock depredation. These insurance schemes provide for the compensation of livestock losses due to carnivore depredation through funds built up from regular insurance premiums paid by participating households, supplemented as necessary (especially during the start-up phase) by external contributions. The programs tend to become financially self-sustaining in about 5-7 years, though we continue to financially support the program periodically, to keep up with market changes, or to help strengthen the corpus if it weakens due to excessive depredation.

By the end of Year 3 we had 13 communities with the Insurance Scheme in Mongolia and Pakistan (3 Mongolia, 57 households; 7 Pakistan, 221 households). By year 3 the Insurance scheme insured 10468 and 2512 livestock in Mongolia and Pakistan respectively. By Year 3 communities were managing a total

of 16,954,100 MNT (Aprox. \$6879) insurance funds and 1,680,000 MNT (Aprox. \$700) insurance claims in Mongolia. In YR3 the insurance fund was \$22,153 (2,696,500 Pakistan rupees). No insurance were paid out to participating households so far. The insurance programs were put into place with the agreement that insurance claims would be paid after two years (to let the funds accumulate), so the claims will be paid in 2018 (Annex 7.6: Livestock Insurance).

Corrals.

The second conservation initiative under this project—predator-proof corrals—also has impacts towards poverty alleviation, namely by reducing the loss of livestock—livestock being a primary component of ‘income’ and family well-being (food, fodder, clothing) in rural communities. In YR2, 12 new corrals were constructed and in YR3 16 new corrals were constructed, for a total of 42 corrals to protect 7564 small livestock and 11 large livestock (Annex 7.4 Project Dataset; Annex 9.2 Darwin YR 3 data). Based on our household surveys in Year 3, no losses have been reported in all predator proof corrals so far (Annex 7.5 Livestock losses and depredation). SLT has completed an initial survey of herders in Mongolia who had corrals built prior to Darwin project initiation; the report further supports our findings and shows herders with corrals report no livestock losses when in use (Annex 9.4).

Handicrafts.

We provided income-generating handicraft programs to 35 communities (Annex 7.4 Project dataset YR1-YR3). Earnings and compensation rates are clearly outlined above under Output indicators 2 and 3. These show the direct cash amounts paid out as part of programme participation. SLT provided training to women in the handicraft program to ensure high quality wool processing to maintain sales and profitability (Annex 8.3d Annual Report SLCF 2016 YR2-page 11). In addition, partner SLCF provided \$4600 in low-interest micro-credit loans to 15 herders for equipment and other privations to boost production capacity and livelihood stability (Annex 9.5 Microcredit Loan Mongolia). On average (including bonus) \$37,194 was distributed to 259 households per year in Mongolia, \$1,612 to 71 households per year in Pakistan and \$37,194 to 55 households per year in Kyrgyzstan for SLE products. In YR3 this amounted to \$49,346 for 416 herders across the 3 countries (Annex 7.4 Project dataset YR1-YR3; Annex 9.6 SLE Handicrafts). The average earnings in cash (including bonuses) were \$146/year in Mongolia, \$276/year in Kyrgyzstan and \$29/year in Pakistan. This was equivalent to 4%, 26% and 2% of GDP per capita. Retail outlet list for YR2, link to SLT online list: <http://www.snowleopard.org/give/partners/retail-partners>

Towards biodiversity conservation, one significant impact of our project is continued adherence to conservation contracts, including cessation of poaching and retribution killing of snow leopards by all communities (Output 4 Indicator 1.2). In addition our abundance estimates in snow leopards and ibex across the 3 years points towards a stable population of both species (Output 4 Indicator 6) and higher estimates of wild ungulates in communities with conservation initiatives than those without.

4 Contribution to Darwin Initiative Programme Objectives

4.1 Contribution to Global Goals for Sustainable Development (SDGs)

Our project contributed to the following Sustainable Development Goals:

-SDG 1-End poverty in all its forms everywhere
See section 3.3 above.

-SDG-5-Achieve gender equality and empower all women and girls
See section 4.4 below. An external review was performed on SLCF’s handicraft model as it was developing. The review showed it contributed to female empowerment in numerous ways including

increasing women's sense of pride, well-being, and status within family and community. See Section 4.4. This model is also being applied in Pakistan and Kyrgyzstan.

-SDG-15-Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably managed forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. Specifically targets 15.4 and 15.5. We have completed first steps towards understanding drivers of poaching and retribution killing that lead to biodiversity loss.

4.2 Project support to the Conventions or Treaties (CBD, CITES, Nagoya Protocol, ITPGRFA)

Our project relates most directly to Articles 8 & 11 within the CBD (In-situ conservation & Incentive measure). We seek to support CBD through: (i) the protection of viable populations of snow leopard and wild ungulates (blue sheep, argali, ibex); (ii) the promotion of environmentally sound sustainable development through livelihood incentive programmes for managing conflicts over livestock depredation by snow leopards, and (iii) the development of conservation objectives and initiatives that are informed by science, and within the context of existing social frameworks, thereby being locally relevant and socially acceptable.

Through the Global Snow Leopard and Ecosystem Protection Program or GSLEP, SLT (key technical advisor to GSLEP) is in regular contact with CBD focal points in each country: Bariushaa Munkhtsog in Mongolia, Syed Mehmood Nasir in Pakistan, and Abdykalyk Rustamov in Kyrgyzstan. Partners are also engaged with CBD focal points, e.g. SLFK works closely with Mr. Rustamov, Director, State Agency on Environment Protection and Forestry through multiple initiatives. In Pakistan, SLF is key technical advisor to Ministry of Climate Change, which is focal point for GSLEP in Pakistan; all CBD focal points are within Ministry of Climate Change. Similarly, SLCF Mongolia works closely with Mr. Munkhtsog, partnering in the country's GSLEP responsibilities and commitments, and being a part of the official delegations.

Although it is too early for us to formally share any findings with them directly related to this Darwin project, their close association with GSLEP, SLT and partners means they are attuned to the various community-based programs we are working on.

The following links show examples of the ways in which SLT and partners regularly interact with CBD focal points:

- SLFK and CBD contact Mr. Rustamov hosted annual award ceremonies to honour rangers in Kyrgyzstan: <https://www.snowleopard.org/world-wildlife-day-anti-poaching-heroes-honored/>, and Mr. Rustamov attended GSLEP meetings in January 2017 and June 2018.
- SLT and Mr. Rustamov have been closely involved in organizing GSLEP Steering Committee meetings each year along with the GSLEP Secretariat.
- They also jointly organized the Global Snow Leopard Forum presided over by the President of the Kyrgyz Republic. All these events have seen the participation of CBD National Focal points of each focal country.

4.3 Project support to poverty alleviation

Our project aims to improve livelihoods of c16,000 people in 47 pastoralist communities in Mongolia, Kyrgyzstan and Pakistan.

As discussed above under Output 1, 47 communities have signed contracts for community-based incentive schemes (handicrafts, insurance, and corrals). These contracts apply to the entire community, and these communities are home to 25,649 people (2475 Mongolia, 22780 Pakistan, 394 Kyrgyzstan; Annex 7.4 Project Dataset)—therefore our project as a whole had a combination of direct and indirect benefits for nearly three times as many people as originally projected.

Insurance, handicraft and corral schemes benefited 5,926 households with community funds, provision of financial repayment for livestock lost to predation, predator-proof corrals supporting reduction of livestock losses, and conservation handicraft schemes that provide payment for sales of wool products. Earnings and compensation rates for handicraft sales and insurance claims are clearly outlined above

under Output 2 (Annex 9.6 SLE Handicrafts; Annex 7.6 Livestock Insurance). These show the direct cash amounts paid out as part of programme participation. Predator-proof corrals also have impacts towards poverty alleviation, namely reducing loss of livestock, with livestock recognized as a primary source of income. During this project, a total of 42 corrals were constructed (28 new) to protect 7564 small and 11 large livestock (Annex 7.4 Project Dataset; Annex 9.2 Darwin YR3 data). SLT has completed an initial survey of herders in Mongolia who had new predator-proof corrals built collaboratively prior to Darwin project initiation; our report shows herders with corrals report no livestock losses when in use Annex 9.4 Post Corral Survey—meaning significant cost savings.

The handicraft schemes under this project were specifically aimed at engaging women and providing them greater interaction with and voice towards conservation issues. Although not part of this project, an external review was performed on the handicraft model in Mongolia as it was developing. The review showed it contributes to female empowerment in numerous ways including increasing women's sense of pride, well-being, and status within family and community (Annex 9.7 Review of SLE). This is the same handicraft model applied in Pakistan and Kyrgyzstan. SLT and partners also provided logistical support to 416 women in the handicraft program to ensure high quality wool processing and consistent sales and profitability, see Output 1 above.

In addition, this project had numerous benefits for communities as a whole, who were covered under the general guidelines of the Conservation Contracts. Through this project, we were able to identify 42 Community Champions and begin providing them with resources and materials for advocating for snow leopard conservation (Output 3). In this way, we have further enhanced the role of local leaders in conservation, and the toolkits we are providing them can help with community discussions and problem solving. We have also supported trainings and exposure visits for local leaders (Output 3) so they can better manage community programs—general skills relevant to this project and beyond.

Finally, we have trained 37 practitioners in PARTNERS Principles in community based conservation, which means there are now more people able to support community-based schemes, advocate for communities, problem solve with communities, and reduce human-wildlife conflict (See Output 3).

4.4 Gender equality

Gender equality was a central element of our whole project, from the project team to practitioners, all the way to the beneficiaries on the ground.

Gender equity and acknowledgement of the role of women in conservation is a key component of the PARTNERS Principles (ANNEX 8.5 Partner's Principles p45). In addition to the broader aims of gender equality in conservation, this aspect is particularly important in the specific context of large carnivore conservation. Recent research indicates that women often have more negative perceptions of predators such as snow leopards, as women can bear disproportionately large costs of damages caused by wildlife such as livestock depredation. As such, programmes need to focus on the perceptions and needs of women, and support women in order to build long-term conservation outcomes for people and wildlife.

In the project team, three out of seven are women. A total of 13 women Champions have been identified, 5 in Mongolia, 5 in Kyrgyzstan and 3 in Pakistan (Annex 8.6 Local Champions). 7 of 15 field implementers that received training under Section 3.1 Output 3 were women.

The PARTNERS Principles have been provided to 37 people via this project (Annex 8.3; Partner Principles training; Annex 8.5 Partner's Principles). During the PARTNERS Principles training sessions, consideration for gender equity were discussed and explored with all participants. These discussions included how to engage with women in communities in a respectful manner, and how to empower those women in ways that fitted with the cultural contexts in which the project was being carried out. Many of these aspects are linked to building trust with communities over the long-term – as with all aspects of the work carried out in the project. In YR3 in Mongolia a 2-day training on PARTNERS principles in community conservation was conducted in Ulaan Bataar in March 2017 (Annex 7.1 UB meeting photos). The training was attended by six women practitioners from various conservation agencies. Exploring gender equality at the practitioner level was seen as being important, as these practitioners can then apply these principles to their own organisations, and be seen as leaders within their networks. This

snowball effect can therefore ensure a longer legacy from the project in terms of promoting gender equality more broadly than just the communities with which we worked.

Direct beneficiaries of the handicraft program are currently 100% female in Mongolia, 100% female in Pakistan, and 98% female in Kyrgyzstan. In YR2, 141 women in Mongolia received handicrafts skill-building training (Annex 8.3d Annual Report SLCF 2016). This training allowed these women to increase their earning potential by developing and implementing a range of handicraft programs. In turn, this earning potential is important towards their overall feelings of empowerment and social equality, as mentioned above.

4.5 Programme indicators

The whole thrust of our project is involving people in conservation management. This includes the management of our community interventions, which local people take ownership of.

Here we present one detailed example to illustrate how Darwin supported ongoing efforts to develop management plan for Tost Nature Reserve. Since 2012, SLCF has been working with the Tost community—a Darwin representative site—to help them convert the Tost Mountains into a state Protected Area. SLCF has helped guide grassroots advocacy at a local and national level including letter-writing campaigns by herders and local community members traveling to the capital to appeal to government and media. SLCF also hosted numerous community workshops focused on team-building and organizational management, to help local herders build capacity for local management. In 2016 their efforts succeeded and Tost was approved by Parliament as a state nature reserve. In 2017, SLCF guided creation of a multi-stakeholder, multi-level management committee, ensuring Tost herders would be equal partners with Provincial and District Government over management of Tost Nature Reserve. They helped to establish an official Collaborative Management Committee consisting of 13 people and representing all stakeholders: herder communities, Gurvantes local government, Provincial Environmental representative, local NGOs, and Great Gobi National Park. This has resulted in a draft management plan for Tost Nature Reserve that is inclusive and comprehensive, and that will soon be submitted to the Ministry for approval. All of this took place concurrent with this Darwin project. In fact, Tost is a touchstone Darwin site—the only community in Mongolia managing handicrafts, insurance and corral programs simultaneously. Through the Darwin project, they received numerous trainings related to these programs, which helped build conservation awareness, general program management skills, and community cohesion. These programs remain a key component of the Management Plan for Tost Nature Reserve. SLCF staff received PARTNERS training in community-based conservation via this Darwin project, which has in turn helped them work with the community and improve how the community collaborates with government. As other communities strive for similar efforts both in Mongolia and throughout snow leopard range, Tost is an important exemplar of community-led management planning for snow leopards.

· *Were any management plans for biodiversity developed?*

Yes, see next question

· *Were these formally accepted?*

A management plan for the pivotal biodiversity region in Mongolia, Tost Nature Reserve, is underway. A draft will be submitted to the Ministry later this year.

· *Were they participatory in nature or were they ‘top-down’? How well represented are the local poor including women, in any proposed management structures?*

The Tost Management Plan is completely participatory with involvement of all levels of stakeholders, from community members up through District and Provincial government. Local people have seats on the management plan committee. There are 5 women in the management plan committee.

· *Were there any positive gains in household (HH) income as a result of this project?*

Yes. Economic gains for communities were discussed in sections 3.3 and 4.3 above.

· *How many HHs saw an increase in their HH income?*

How much did their HH income increase (e.g. x% above baseline, x% above national average)? How was this measured?

416 households were involved in the handicraft schemes and received direct cash from this project. The average earnings in cash (including bonuses) were \$146/year in Mongolia, \$276/year in Kyrgyzstan and \$29/year in Pakistan. This was equivalent to 4%, 26% and 2% of GDP per capita. Because of cultural sensitivities it was inappropriate to collect data on income.

4.6 Transfer of knowledge

See description of trainings held related to PARTNERS Principles in Community Conservation, under Output 3. One of the significant outcome of this project has been development of training module for the PARTNERS Principles, and training of 37 practitioners using this module. The principles are specifically aimed at enabling practitioners to solve practical challenges of community-based conservation related to human-wildlife conflict (e.g. diffusing tense situations, bringing stakeholders together, etc.). Based on a strong need expressed by the trainees, a refresher course was also created, and piloted with 10 returning trainees.

Along with the Field Implementers Toolkit, discussed above, a separate but related toolkit was developed for local champions. As of the end of YR3 and 42 champions were identified (Annex 8.6 Local Champions). In Mongolia and Pakistan, toolkits have not yet been fully translated and distributed to Champions—this will be completed in 2019, in coordination with follow-up PARTNERS Principle trainings. In Kyrgyzstan, the toolkits were translated and shared with 5 Champions in YR2, and then shared with 5 more Champions in YR3 (Total= 10).

Aside from the specific training programmes noted above, which included training for practitioners (Annex 8.3 Training Summary), SLT staff were also closely involved in international GSLEP meetings. In fact, one of the policy recommendations at the Global Forum in August 2017 included the objective of training 500 practitioners and frontline staff of all 12 snow leopard range countries in PARTNERS Principles for community-based conservation. Funds for implementing this GSLEP objective are now being pursued (Annex 9.8 GSLEP- page 5, bullet 6).

4.7 Capacity building

Dr. Ali Nawaz from Pakistan used his training to give lectures in community-based conservation to students at the Qaid-i-Azam university.

5 Sustainability and Legacy

Community-based conservation schemes remain a high-priority under the Global Snow Leopard and Ecosystem Protection Program (GSLEP) as developed in 2014, <http://www.globalsnowleopard.org/who-we-are/gslep-program/>. In section 4.2 we outlined the GSLEP meetings that project partners have been involved with policy makers, leading to major impacts on policy both nationally and internationally. In Pakistan, the Ministry for Climate Change, which is the nodal contact for GSLEP, endorsed a GEF6 proposal with SLF as implementing partner that has community-based conservation as a prime component. Government of Kyrgyzstan has a 10-year MoU with SLFK and SLT for snow leopard conservation projects that include community-based conservation. Mongolia's national snow leopard strategy, facilitated and informed by SLCF, ratified under GSLEP, prioritizes community-based conservation. This shows high-level recognition and interest for community-based conservation, as well as reliance on SLCF, SLFK, and SLF for continuation and expansion of programs and activities. Through ongoing contact, SLCF, SLFK and SLF have kept officials in Government informed about significant progress of community-based conservation programmes. As mentioned above, training 500 practitioners and front line staff in community-based conservation in all 12 snow leopard range countries using the resources developed through this project has been identified as a GSLEP priority.

Towards our exit strategy, to achieve a stable end point during the life of our project, we aimed to developing a sustainable legacy by i) training staff to support communities, ii) training champions, and iii) empowering communities to take ownership of their corrals, insurance and handicraft programmes. Towards these goals, in YR2 and YR3 advanced concepts in community engagement were shared with field staff during our March 2017 and 2018 workshops. Mishra, SLT, published a book called PARTNERS Principles, which codifies methods for community engagement; this book has been shared with all field staff and e-version of the book has been made freely and widely available. The book has received favourable independent reviews and has been recommended as essential reading for practitioners. Additionally, Mishra, Young and Redpath have published a paper based on these principles, which is being shared with field implementers.

We have also prepared and translated toolkits for Community Champions, and in YR2 over 90 meetings occurred with champions to improve their capacity to support snow leopard conservation (Annex 8.6 Local Champions). In YR3 additional and follow up meetings were held with Champions (Annex 8.6 Local Champions). As noted in Section 3.2 Outputs 1 and 3, multiple trainings and meetings were held with communities to sign contracts and support programme ownership. In the case of corrals, contracts require herders to maintain corrals and pay back costs of materials. In the case of livestock insurance, local committees manage program norms and as communities pay premiums into the insurance fund corpus donor funding can wane off. In the case of handicrafts, training was provided to women to show them marketable products and high-quality skills for wool processing. While SLT remains the primary buyer and distributor, these are general skills women can use to make and sell products for other markets, if the need arises.

Our partner organizations will continue to have a long-term presence and support the communities in the delivery of these schemes into the foreseeable future.

6 Lessons learned

Throughout the project, management and collaboration has worked well between all partners. There was a good level of communication, discussion and consensus, despite the geographical distances between the partners. That said, time has been the most limiting factor. Working across three counties with very different cultures and geographic factors has necessitated more time for proper discussion, execution of activities, and collation of data than anticipated. While SLT has worked closely with SLCF, SLF and SLFK on multiple projects, this is the first discrete project where all three have been so intimately involved in planning and implementation on such a large scale.

This challenge has been reflected in our definition of community. For example, the term 'community' had to be defined differently for Mongolia vs Pakistan or Kyrgyzstan. In the latter two, community is more akin to what we in the West are accustomed to (a geographically confined number of households that share some form of unifying governance). However in Mongolia the socio-cultural history, combined with the geographic landscape, has created a much different scenario in which households are widely spread apart, move regularly, and are often wary of communal activities. Local governance is in charge of a region, but not a set number of discrete households. Therefore the way we count 'communities' had to be redefined as those households working together under a unifying programme. Having to make adjustments of this sort, as well as having to ensure that all our methods/protocols were appropriate and manageable in the field took much more discussion than anticipated over a longer period of time. But in the end, this was a fruitful way for all partners to gain a greater understanding and appreciation for the unique human environments each worked in.

This affected how we determined baseline numbers for the number of communities in Mongolia engaged with handicraft schemes. We initially overestimated the baseline number. The Darwin project has forced us to deal with these cross-cultural differences in definitions and we have now agreed definitions and numbers.

Another learning point has been an emphasis on making our approach context dependent. This is very important when working across different cultures and countries. For example, in Mongolia and Pakistan, the partners have wanted to name and celebrate community champions. This is not so in Kyrgyzstan—where they actually feel that they cannot make them publicly known. They cannot single them out, or it will look like favouritism. So e.g. instead of having a special meeting with a champion, they have a wider

community meeting, and make sure champion is there, and give information to everyone (with hopes champion will utilize it most). This helps maintain the social fabric of the communities.

We also learned that one challenge when working collaboratively with communities is predicting exactly what will happen and the timescale of change. An example of this is the issue of multiple interventions. Our approach is to support the communities to select the interventions that are suitable for them, within a timescale that is appropriate to their needs and resources, and not to impose or force interventions. As a consequence of this approach, we couldn't predict exactly what communities would want to do. So, we underestimated the number of corrals people wanted/needed, and overestimated the number of households able to join insurance or handicrafts.

By the end of YR3 we have 15 communities with >1 interventions. By itself this would weaken the strength of our statistical analysis in comparing 0 v 1 v 1+ interventions, but we have been able to augment our dataset by including equivalent data from the communities SLT work with in India and China where these interventions also apply. These country teams were part of the questionnaire planning and YR3 data collection, which make our sample size and our analysis more robust (e.g. in India, there are communities with 1, 2 and 3 schemes running) (Annex 9.2 Darwin YR3 data). We sought to seek to minimise the risks to our analysis by providing comparable data from our partners in China and India, at no cost to our project.

An interesting challenge that arose in YR2 was trying to apply double observer methods for ungulate surveys in Kyrgyzstan for the first time. Prior to our grant, surveys had worked well in Mongolia and Pakistan, and we assumed similar results in Kyrgyzstan. However, when we tried to apply them in YR2 we were not able to complete them as anticipated. As it turned out, one big difference was due to trophy hunting activities in and surrounding the study areas, which made the ungulates display more vigilant behaviour. Additional expert support had to be provided to the Kyrgyz team, which was addressed in YR3, and the surveys finally completed successfully.

Snow leopard surveys were not completed in Pakistan in year 3 because of delays in getting permission to set up cameras in a politically sensitive part of the world. However, cameras were finally set up in Hoper-Hispar in April 2018, but they will only be collected in the first week of July 2018. These data will be part of the longer-term analyses of snow leopard abundance, which is only expected to change slowly over time.

Based on these learnings, we are therefore in a stronger position to make a positive impacts in these remote mountainous areas. During our Bishkek Workshop in March 2018 we summarized opportunities and challenges of the Darwin Project. Annex 9.9 Lessons learned summarizes the discussion.

6.1 Monitoring and evaluation

We continue to adhere to the M+E plan, which is working well, and have made no significant changes. Numerous international meetings were held in person and online (see Section 2—Project Partnership), to bring all project partners together to develop project plans, refine understanding and agreement towards project objectives/methods, discuss progress, agree sampling and survey procedures and review data. UoA, CEH and SLT have met more frequently to track progress and address logistical issues.

Field reports have been provided by all partners. We have a dedicated database to house all project data to allow for robust analysis. We also collect and store survey data online using the program Fulcrum. Surveys, risk assessments and ethics agreements have been finalised.

For the evaluation of the training course, we built on the Kirkpatrick broad framework (1996) for evaluation, looking broadly at four pillars of evaluation of training, namely reaction, learning, behaviour, and results. The 'reaction' relates mainly to trainees' responses to the quality or the relevance of training. Learning relates to the level of learning during the course of the training. Behaviour outcomes relate to how knowledge, skills and confidence gained through training can or will be applied in the future by trainees. Outcomes allow for some level of understanding of the potential impact of the training on organizational goals and objectives. In addition, tailored to the purpose of the course, we included in the evaluation an element on the usefulness and potential for improvement the toolkit on which the training course was based, and which was provided prior to the course as supporting material. The post-training questionnaire therefore consisted of the following broad areas:

- Views about the training course arrangements (agenda, comfort and layout of training room, catering), their effectiveness in terms of stimulating learning and discussion, and how they could be improved in the future
- Aspects of the training course that most and least appreciated and why
- Usefulness of the supporting material, namely the toolkit, why, and how it could be improved in the future
- The extent to which the training course impacted on building skills, knowledge and confidence, and how
- How trainees were going to share or apply what was learned in the training course

During the final Darwin meeting in Bishkek (March 2018) we developed plans for integrating a Monitoring and Evaluation philosophy into the Snow Leopard Trust's programs. A M&E plan was developed for all community based conservation programs following the results based framework approach. For each program indicators of inputs, outputs, outcomes and impacts were identified. These indicators were then discussed and revised with country directors. Snow Leopard Trust plans to create basic unified programmatic monitoring sheets for each program. This information will be collected using the program Fulcrum, which was piloted during the Darwin project. The Darwin project has helped highlight the need for such tracking data and unified data collection techniques as it was needed across the 3 years to track progress.

Data collection for Output 2 allowed SLT and partners to test a new data management system- Data collected digitally through Fulcrum. Fulcrum will continue to be used by SLT and Partners in order to collect systematic data across the snow leopard range. Output 2 also provided key inputs to the development of a Monitoring and Evaluation framework for SLT and partners. The Monitoring and Evaluation framework is currently being finalized and will be adopted by SLT in order to monitor progress of community conservation efforts and improve program efficiency.

6.2 Actions taken in response to annual report reviews

Ten queries were raised in response to the YR1 annual review. No queries were raised in the YR2 annual review. We have discussed the reviews and the responses with our partners and collaborators. (See Annex 10: Response to YR1 comments)

7 Darwin identity

- Publicising the Darwin Initiative

Darwin page on the SLT website: <https://www.snowleopard.org/darwin-initiative/>

Darwin logo included in the Field Implementers Toolkit, Champions Toolkit, PowerPoint for training and presentations to the team.

Darwin Initiative credited in blog posting related to the project (see final point below).

Darwin Initiative credited in SLT Newsletters:

Winter 2015: <http://www.snowleopard.org/downloads/2015%20Winter%20SLT%20Newsletter.pdf>

-Winter 2016: <https://drive.google.com/file/d/0B6lpgEYpgeypZkM3RGJrSWJiX1E/view>

Darwin Initiative acknowledged in a series of talks

Wildcru, Oxford University (May 2018)

Gothenberg University (Nov 2017)

Global Snow Leopard Forum (Aug 2017)

Plenary talk at South African Wildlife management Association conference,
Goudini Spa, Sept 2017

Uppsala University (Feb 2017)

University of Cape Town (Nov 2016)

Umea University (Oct 2016)

Lund University (Oct 2016)

Peking University (August 2017)

Peking University (March 2018)

Sheffield University (2018)

BES/UK Conservation Agencies Symposium (2018)

Scottish Natural Heritage (2018)

Scottish Natural Heritage Seminar Series (2017)

British Ecology Society and Cambridge Conservation Initiative Annual Symposium
(2016)

- UK Government's contribution to project

On our outputs we have used the statement: "[publication] made possible by a grant aided by the Darwin Initiative through UK Government funding"

- A distinct project

Yes, we have only credited Darwin Initiative Funding to stories recognizing discrete and distinct aspects of this project.

- Understanding of the Darwin Initiative

There is high level of understanding among partners SLCF, SLF, and SLFK, which are prominent NGOs within their respective countries. Darwin Initiative has been explained to their primary staff during the field implementer trainings.

- Twitter/Instagram/Flickr/Blog/YouTube and links to the Darwin account?

The following article was published on SLT's blog and reposted on Darwin Initiative Blog:
<http://www.snowleopard.org/your-snow-leopards-are-killing-our-goats>. We also have a dedicated website to share links/news & relevant findings so it can be more easily accessed and shared:
<http://www.snowleopard.org/learn/monitoring-our-impact/darwin-initiative>

8 Finance and administration

8.1 Project expenditure

Complete the expenditure table below, providing a breakdown of salaries, capital items and explanations of 'Other' costs. If the budget was changed since the project started, please clarify the main differences. **Explain in full** any significant variation in expenditure where this is +/- 10% of the approved budget lines.

Project spend (indicative) since last annual report	2017/18 Grant (£)	2017/18 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			0%	
Consultancy costs				
Overhead Costs			0%	
Travel and subsistence			-28%	Lower expenditure on T&S and intervention costs than expected. Reallocation of funds to field (operating) costs agreed with Eilidh Young 11/04/18
Operating Costs			+81%	Lower expenditure on T&S and intervention costs than expected. Reallocation of funds to field (operating) costs agreed with Eilidh Young 11/04/18
Capital items (see below)				
Others (see below)			-14%	Lower expenditure on T&S and intervention costs than expected. Reallocation of funds to field (operating) costs agreed with Eilidh Young 11/04/18
TOTAL				

Staff employed (Name and position)	Cost (£)
PI, project management & ecological expertise : Professor Steve Redpath	

Training, evaluation & social science expertise : Dr Juliette Young	
Grant Budget Coordinator: Chris Czarnecki	
SLCF Director: Bayarjargal Agvaantseren (Bayara)	
Handicraft Coordinator: Erdenechimeg Baasandamba (Chimgee)	
Research and Monitoring Manager: Purevjav Lkhagvajav (Puji)	
Regional Ecologist: Justine Shanti Alexander	
SLFK Director: Kubanych Zhumabai uulu (Kuban)	
Operations Assistant: Venera Amankul kizi	
SLFP Director: Muhammad Ali Nawaz (Ali)	
Regional Coordinator: Shoaib Hameed	
Enterprise Development Officer: Yasmeen Cheema	
TOTAL	

Capital items – description	Capital items – cost (£)
TOTAL	

Other items – description	Other items – cost (£)
Corrals Consumables: printing, maps, notebooks, etc. Shipping: handicrafts to SLT Insurance Seed Money	
TOTAL	

8.2 Additional funds or in-kind contributions secured

Please confirm the additional funds raised for this project. This will include funds indicated at application stage as confirmed or unconfirmed, as well as additional funds raised during the project lifetime. Please include all funds relevant to running the project as well as levered funds for additional work after the project ends. N.B.: the total of both these sections is the figure required for Annex 3, Q23.

Were any additional in-kind contributions secured during the project?

Source of funding for project lifetime	Total (£)
University of Aberdeen	
Centre for Ecology and Hydrology	
Snow Leopard Trust	

Norwegian Embassy (via SLFK)	
People's Trust for Endangered Species (via SLCF)	
Nysether Family Foundation (via SLT)	
Partnership Funding by Fondation Segre managed by Whitley Fund for Nature (via SLT)	
Woodland Park Zoo (via SLT)	
David Shepherd Wildlife Foundation (via SLT)	
TOTAL	

Source of funding for additional work after project lifetime	Total (£)
This work will be continued through the long-term work of the Snow Leopard trust and partners.	
TOTAL	

8.3 Value for Money

Finding cost effective ways of supporting coexistence of rural communities with large predators is extremely challenging. Top-down approaches, such as the relocation of villagers out of Tiger reserves in India, have proved financially costly, often ineffective and sometimes controversial.

Our philosophy is to support and evaluate bottom-up approaches, encouraging communities to take ownership of schemes. This project builds on long-term partnerships and community relationships and is focused on the delivery of multi-pronged, collaborative schemes of individual programmes that are well-piloted, in regions where SLCF, SLFK, SLFP already work closely with communities.

Therefore, this Darwin project secured value for money by supporting the development of a robust, self-sustaining programme that will continue into the future under SLT's guidance. We have directly benefitted 16,000 people across 47 communities in extremely remote, high-mountain landscapes of three countries. Through Darwin funded evaluation we are beginning to understand the attitudes towards interventions, and the consequences of interventions for livelihoods, attitudes and behaviour across 3 countries. The lessons learned will advise best practices for meeting country goals under the GSLEP program, and more generally those working to balance conservation and livelihoods worldwide.

Also this project has provided value for money in two main ways. First, we have taken care to be efficient with spending. As planned, big ticket items such as international flights and hotel/food for workshops were costed and planned using economy rates, and optimizing things like room occupancy (sharing rooms), to enable maximum number of people to attend. For supplies and equipment, such as corral materials, we sourced fencing and other materials that were high enough quality to withstand the elements and wildlife interaction, but within budget and community expectations.

Strategies and policies using snow leopards as a focal species, such as the GSLEP are already creating connectivity and landscape-level conservation (GSLEP landscapes cover >500,000 sq km), and have potential in the future to elicit funding for community-led conservation from Governments and international bodies (e.g. GEF).

Annex 1 Project's original (or most recently approved) logframe, including indicators, means of verification and assumptions.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Impact: <i>Poverty of rural herders and threats to biodiversity are reduced in snow leopard regions of Mongolia, Pakistan and Kyrgyzstan through collaborative conservation programmes.</i></p>			
<p>Outcome: Participatory interventions in 47 communities reduce livestock losses, insure against predation, increase household income and improve attitudes, leading to stable/increased snow leopard abundance and improved understanding for conflict management.</p>	<p>Indicator 1 By 2018, at least 25 new corrals will be predator-proofed, protecting up to 9,000 additional livestock from predation for a total of at least 39 corrals and up to 14,400 livestock protected.</p> <p>Indicator 2 By 2018, at least 4 new insurance programmes will insure up to 6,500 additional livestock to compensate for losses to carnivore predation, for a total of 12 insurance programmes.</p> <p>Indicator 3 By 2018, at least 4 new community handicraft schemes will be developed, increasing average income of up to 75 new participating households by up to US\$440 pa for a total of 36 communities.</p> <p>Indicator 4 By 2018, attitudinal surveys will indicate that both men and women will be more positive towards interventions, predators and wild ungulates in communities with conservation contracts compared to communities with no interventions, and in communities with multiple interventions compared to single ones.</p> <p>Indicator 5 By 2018, evidence will indicate that illegal killing of wild ungulates and snow leopards in communities with interventions will stop.</p> <p>Indicator 6 By 2018, abundance of wild ungulates and snow leopards will be higher in 3 landscapes with participating communities relative to 3 paired control landscapes.</p>	<p>Indicator 1 Annual report summary indicating the numbers of livestock killed at each household with predator proof corrals.</p> <p>Indicator 2 Annual reports from each country reporting on premium and pay out rates and the value of different livestock for all communities in insurance programmes.</p> <p>Indicator 3 Reports on handicraft programme from each country, reporting on numbers of participants, household income, handicraft sales and price received.</p> <p>Indicator 4 Reports of baseline and final surveys for sample households in sample communities measuring attitudes towards interventions, snow leopards and wild ungulates.</p> <p>Indicator 5 Annual reports from each country summarising evidence of illegal activity in all communities as estimated from various reports and interviews.</p> <p>Indicator 6 Reports from six landscape-scale, wildlife surveys of wild ungulate and snow leopard abundance.</p>	<p>Assumption 1 Communities remain willing to engage in collaborative, multi-pronged conservation management initiatives</p> <p>Assumption 2 US and online markets for handicrafts and livestock products remain sustainable</p> <p>Assumption 3 There is no severe socio-political unrest that prevents work with communities in the host countries. In our experience, access to some of the communities in Pakistan can get restricted for varying periods. Based on experience and our sustained field presence, we expect occasional delays but not a cessation of our work. We don't anticipate such issues in the other two countries.</p> <p>Assumption 4 There are no new external threats to pastoral livelihoods and environments, such as damaging land uses (e.g. mining). In Mongolia where this is an issue, as a separate initiative with independent funding, we have been assisting the communities to negotiate with local governments to protect their areas from large-scale and illegal mining.</p>

	<p>Indicator 7 By 2018, the impact of conservation interventions on income, attitudes and snow leopards will be assessed and shared the wider community.</p>	<p>Indicator 7 Evidence of communication with Snow Leopard Network, CBD representatives and GSLEP officials via emails, reports and talks; and articles submitted to conservation journals.</p>	
<p>Output 1 Conservation contracts signed with 47 communities through participatory methods, with >11 communities engaged in multiple programmes.</p>	<p>1.1. >25 additional corrals predator-proofed, protecting up to 9,000 additional livestock by yr 3, over baseline of 14 corrals protecting 5,400 livestock</p> <p>1.2. >4 additional communities insure up to 6,500 additional livestock by yr 3, over baseline of 8 insuring 5000 livestock</p> <p>1.3. 390 households in 36 communities expected to engage in handicrafts by yr 3, over baseline of 315 households in 32 communities</p> <p>1.4. Nine new and 38 updated conservation contracts signed for 47 communities, by yr 2</p> <p>1.5. >11 communities expected to be engaged in multiple programmes by 2018</p>	<p>Indicator 1 Project notes of training delivered to field implementation teams</p> <p>Indicator 2 Programme data, stories, field reports and receipts collected by SLCF, SLFP, SLFK to monitor corral building, insurance scheme progress and handicraft production and purchases.</p> <p>Indicator 3 Field implementer meetings with conservation champions to keep record of their involvement in community discussions</p> <p>Indicator 4 Surveys of losses, household income, attitudes and killing of snow leopards and wild ungulates</p>	<p>Assumption 1 Results of project are clear and incorporated into policies/strategies</p> <p>Assumption 2 Field implementers will remain with their respective organizations for long enough to make training worthwhile</p> <p>Assumption 3 We will be able to find effective community champions within a reasonable amount of time</p> <p>Assumption 4 Communities remain interested in corrals, handicrafts and insurance as good options for mitigating conflicts and leadership within community remains cohesive enough to manage multi-pronged programmes</p>
<p>Output 2 An assessment of the effectiveness of conservation initiatives on livestock losses, household income and attitudes towards interventions, predators and ungulates, including regional and gender effects.</p>	<p>2.1. Effectiveness of predator-proofed corrals on livestock losses analysed in yr 3.</p> <p>2.2. Effectiveness of livestock insurance programmes on payouts and household income analysed in yr 3.</p> <p>2.3. Effectiveness of handicraft scheme on household income analysed in yr 3.</p> <p>2.4. Effectiveness of interventions on attitudes towards interventions, wild ungulates and snow leopards by men and women in communities analysed in yr 3</p>	<p>Indicator 5 Reports from wild ungulate and snow leopard surveys by partner organisation staff/researchers.</p> <p>Indicator 6 Snow Leopard Network, GSLEP & CBD contact communications and submitted manuscripts.</p> <p>Indicator 7 SLCF, SLFP, SLFK Strategic Plans</p>	
<p>Output 3 Training delivered for field implementers and meetings held with community champions</p>	<p>3.1. Training of 13 field implementers from SLCF, SLFP and SLFK in negotiation and community engagement skills increased sensitivity towards respectful community engagement and retention of information in yr 3</p>	<p>Indicator 8 Post-training response forms from field staff</p>	

	3.2. 47 respected community conservation champions are actively engaged in dialogue with communities by end of yr 2		
Output 4 An assessment of the impact of conservation initiatives on abundance of wild ungulates and snow leopards.	4.1. Attitudes towards predators and wild herbivores will be more positive in participating households and communities by yr 3. 4.2. Triangulated reports indicate that killing of wild ungulates and snow leopards stops in communities with conservation contracts by yr 3. 4.3. Indices of abundance of snow leopards in the sampled programme landscapes are stable or higher in yr 3 than yr1 and higher compared to estimates from control landscapes in yr 3		
Output 5 Communication with Snow Leopard network, CBD and GSLEP representatives and the wider conservation community.	5.1. Working paper outlining effectiveness of interventions on losses, income and attitudes incorporated into SLCF, SLFP, SLFK strategic planning and distributed to Snow Leopard Network and appropriate CBD and GLSEP contacts by yr 3 5.2. Manuscripts prepared on effectiveness of interventions on losses, income and attitudes by yr 3 5.3. Best practice in conservation interventions shared with international field teams yr 3		
Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)			
<p>Activity 1.1 Field implementers attend council meetings in each community</p> <p>Activity 1.2 Field implementers work with community leaders to agree on suite of conservation programmes, sign new/update existing conservation contracts</p> <p>Activity 1.3 Field implementers secure materials, communities secure labour and corrals constructed in relevant communities</p> <p>Activity 1.4 SLCF, SLFK and SLGP distribute seed money into community fund to jumpstart insurance schemes in relevant communities</p> <p>Activity 1.5 Orders for handicrafts placed by SLT via field implementers; field implementers collect products twice/yr and bring to SLCF, SLFK, SLFP headquarters to ship to SLT for distribution</p> <p>Activity 2.1 UoA and SLT collate and review existing information</p> <p>Activity 2.2 UoA, SLT and CEH agree protocols for surveys at partner start-up meetings</p> <p>Activity 2.3 Baseline (yr 1) and final yr (yr 3) survey data collected in sample of communities on livestock losses, income and attitudes</p>			

- Activity 3.1 Toolkits prepared for field implementers by UoA, SLT and CEH
- Activity 3.2 Training workshop for field implementers delivered, based on negotiation theory and PARTNERS Principles, and SLT's field monitoring manual
- Activity 3.3 Field implementers hold meetings for community representatives to convey skills in and discuss programme management/implementation (accounting, wool processing, sales and marketing)
- Activity 3.4 Toolkits for local champions developed by UoA, SLT and CEH
- Activity 3.5 Local champions are identified and sensitized in programme communities through meetings with SLCF, SLFK and SLFP field implementers and toolkit
- Activity 3.6 Sustained interaction with local champions, including documentation by SLCF, SLFK, SLFP field implementers of their conservation awareness activities.

- Activity 4.1 Any killing of snow leopards and wild ungulates recorded Yrs1-3
- Activity 4.2 Snow leopard abundance surveys in representative programme and control landscapes undertaken in Yr 1 and Yr 3 through camera trapping
- Activity 4.3 Wild ungulate surveys undertaken in representative habitats in programme and control landscapes in Yrs 2 & 3 through double observer techniques
- Activity 4.4 Photo-identification, data compilation and analyses by partners

- Activity 5.1 Working paper outlining effectiveness of interventions on losses, income and attitudes completed and shared with partners, Snow Leopard Network and appropriate CBD and GLSEP contacts
- Activity 5.2 Peer review paper on effectiveness of interventions on losses, income and attitudes submitted for publication
- Activity 5.3 Meeting with international field teams to discuss 3 best practice in conservation interventions

Annex 2 Report of progress and achievements against final project logframe for the life of the project

Project summary	Measurable Indicators	Progress and Achievements June 2018
<p>Impact</p> <p><i>Poverty of rural herders and threats to biodiversity are reduced in snow leopard regions of Mongolia, Pakistan and Kyrgyzstan through collaborative conservation programmes.</i></p>		<p>Through our project we are working towards improving the livelihoods of households in 47 communities, and supporting them to coexist with large predators, so that threats to snow leopards decrease.</p>
<p>Outcome</p> <p>Participatory interventions in 47 communities reduce livestock losses, insure against predation, increase household income and improve attitudes, leading to stable/increased snow leopard abundance and improved understanding for conflict management.</p>	<p>Indicator 1 By 2018, at least 25 new corrals will be predator-proofed, protecting up to 9,000 additional livestock from predation for a total of at least 39 corrals and up to 14,400 livestock protected.</p> <p>Indicator 2 By 2018, at least 4 new insurance programmes will insure up to 6,500 additional livestock to compensate for losses to carnivore predation, for a total of 12 insurance programmes.</p> <p>Indicator 3 By 2018, at least 4 new community handicraft schemes will be developed, increasing average income of up to 75 new participating households by up to US\$440 pa for a total of 36 communities.</p> <p>Indicator 4 By 2018, attitudinal surveys will indicate that both men and women will be more positive towards interventions, predators and wild ungulates in communities with conservation contracts compared to communities with no interventions, and in communities with multiple interventions compared to single ones.</p>	<p>Target met. 28 new corrals built protecting 7575 additional livestock, for a total of corrals protection 12,975 livestock.</p> <p>Target met. 5 new insurance programs set up. By YR3 a total of 12,980 livestock (8598 additional livestock) were insured in 13 communities</p> <p>Target partially met. 5 new community handicraft schemes developed for a total of 35 communities with 416 households involved. Average income including bonuses was \$151 per household per year. This average income per household varies between countries and in Kyrgyzstan reached up to \$316 per household per year. We did not meet the indicator of \$440 pa.</p> <p>Target met. YR1 and YR3 completed. Draft publication written.</p>

	<p>Indicator 5 By 2018, evidence will indicate that illegal killing of wild ungulates and snow leopards in communities with interventions will stop.</p> <p>Indicator 6 By 2018, abundance of wild ungulates and snow leopards will be higher in 3 landscapes with participating communities relative to 3 paired control landscapes.</p> <p>Indicator 7 By 2018, the impact of conservation interventions on income, attitudes and snow leopards will be assessed and shared the wider community.</p>	<p>Target partially met. In YR2 and YR3 no reported killing of snow leopards. But in YR2 and YR3 one case each year of a wild ungulate poached.</p> <p>Target partially met. Because of delays with permits and with deriving good population estimates we do not yet have final estimates of abundance for all areas in yr 3. Initial evidence suggests that control landscapes have tend of have more snow leopards and ungulates than control landscapes (Annex 10.1 Estimates of ungulate abundance)</p> <p>Target met. Impact has been assessed. People have more positive attitudes and express reduced intention to kill leopards when they are engaged in interventions. This has been shared with country teams.</p>
<p>Output 1. Conservation contracts signed with 47 communities through participatory methods, with >11 communities engaged in multiple programmes</p>	<p>1.1. >25 additional corrals predator-proofed, protecting up to 9,000 additional livestock by yr 3, over baseline of 14 corrals protecting 5,400 livestock</p> <p>1.2. >4 additional communities insure up to 6,500 additional livestock by yr 3, over baseline of 8 insuring 5000 livestock</p> <p>1.3. 390 households in 34 communities expected to engage in handicrafts by yr 3, over baseline of 315 households in 32 communities</p> <p>1.4. Nine new and 38 updated conservation contracts signed for 47 communities, by yr 2</p> <p>1.5. >11 communities expected to be engaged in multiple programmes by 2018</p>	<p>Target met. 42 predator proof corrals (28 new) protecting 7575 livestock.</p> <p>Target met. 5 additional insurance schemes set up.</p> <p>Target met. Achieved 416 households in 35 communities engaged in handicrafts by end YR 3</p> <p>Target met. 47 contracts signed by YR3</p> <p>Target met. 15 communities engaged in multiple programmes</p>
<p>Activity 1.2. <i>Field implementers work with community leaders to agree suite of conservation programmes, sign new/update existing conservation contracts</i></p>		<p>Field implementers agreed programmes and signed or continued current contracts with 40 communities.</p>

<p>Activity 1.3. <i>Field implementers secure materials, communities secure labour and corrals constructed in relevant communities</i> (extension approved Oct2016)</p>		28 new corrals built
<p>Activity 1.4 <i>SLCF, SLFK and SLGP distribute seed money into community fund to jumpstart insurance schemes in relevant communities</i></p>		Seed money distributed into 13 schemes in YR3
<p>Activity 1.5 <i>Orders (O) for handicrafts placed by SLT via field implementers; field implementers collect products twice/yr and bring to SLCF, SLFK, SLFP headquarters to ship (S) to SLT for distribution</i></p>		Total: 80757.5 SLE products produced over three years.
<p>Output 2. An assessment of the effectiveness of conservation initiatives on livestock losses, household income and attitudes towards interventions, predators and ungulates, including regional and gender effects.</p>	<p>2.1. Effectiveness of predator-proofed corrals on livestock losses analysed in yr 3.</p> <p>2.2. Effectiveness of livestock insurance programmes on payouts and household income analysed in yr 3.</p> <p>2.3. Effectiveness of handicraft scheme on household income analysed in yr 3.</p> <p>2.4. Effectiveness of interventions on attitudes towards interventions, wild ungulates and snow leopards by men and women in communities analysed in yr 3</p>	<p>Target met. SLT predator proofed corals eliminate depredation in corrals</p> <p>Target met. In Mongolia claims and claims payments reviewed and distributed for insurance programs. In Pakistan claims will be distributed in 2018.</p> <p>Target met. Herders received income from handicraft orders in Mongolia, Kyrgyzstan, Pakistan.</p> <p>Target met. Effectiveness analysed.</p>
<p>Activity 2.3. <i>Baseline (yr 1) and final yr (yr 3) survey data collected in sample of communities on livestock losses, income and attitudes</i></p>		YR1 baseline completed and YR3 surveys completed
<p>Output 3. Training delivered for field implementers and meetings held with community champions</p>	<p>3.1. Training of 13 field implementers from SLCF, SLFP and SLFK in negotiation and community engagement skills increased sensitivity towards respectful community engagement and retention of information in yr 3</p> <p>3.2. 47 respected community conservation champions are actively engaged in dialogue with communities by end of yr 3</p>	<p>Target met. Trained 37 field implementers in appropriate skills and published a report and paper on how to engage with communities.</p> <p>Target met. 42 champions identified and actively engaged.</p>

Activity 3.3 <i>Field implementers hold meetings for community representatives to convey skills in and discuss programme management/implementation skills</i>		Field implementers have held meetings with our community champions to discuss skills and programme management. Annex 3.6
Activity 3.5 <i>Local champions are identified and sensitized in programme communities through meetings with SLCF, SLFK and SLFP field implementers and toolkit</i>		Field implementers have held meetings with our community champions to discuss skills and programme management. Annex 3.6
Activity 3.6 <i>Sustained interaction with local champions, including documentation by SLCF, SLFK, SLFP field implementers of their conservation awareness activities.(Removal from Yr 1 approved April2016)</i>		Interactions with champions now recorded and tracked. Annex 3.6
Output 4. An assessment of the impact of conservation initiatives on abundance of wild ungulates and snow leopards.	<p>4.1. Attitudes towards predators and wild herbivores will be more positive in participating households and communities by yr 3.</p> <p>4.2. Triangulated reports indicate that killing of wild ungulates and snow leopards stops in communities with conservation contracts by yr 3.</p> <p>4.3 .Indices of abundance of snow leopards in the sampled programme landscapes are stable or higher in yr 3 than yr1 and higher compared to estimates from control landscapes in yr 3</p>	<p>Attitudes towards predators more positive in participating households. Attitudes towards ungulates high in general and no detectable effect of interventions</p> <p>Monitoring from YR1- YR3 indicate no poaching of SL in intervention communities There was evidence of poaching wild ungulates in two communities in Pakistan and one community in Kyrgyzstan</p> <p>Available data suggest higher abundance in conservation landscapes, but provisional, as awaiting final data.</p>
Activity 4.1 <i>Any killing of snow leopards and wild ungulates recorded Yrs 1-3</i>		In YR2 and YR3 no reported killing of snow leopards. There was evidence of poaching wild ungulates in two communities in Pakistan and one community in Kyrgyzstan
Activity 4.2 <i>Snow leopard abundance surveys in representative programme and control landscapes undertaken in Yr 1 and Yr 3 through camera trapping</i>		YR1 and YR3 surveys completed. In Pakistan surveys delayed due to permit restrictions.
Activity 4.3 <i>Wild ungulate surveys undertaken in representative habitats in programme and control landscapes in Yrs 2&3 through double observer techniques</i>		YR1 and YR3 surveys completed. In Pakistan surveys delayed due to permit restrictions.

Activity 4.4 Photo-identification, data compilation and analyses by partners		Analysis completed in Mongolia and Pakistan. In Kyrgyzstan delays in Photo ID.
Output 5. Communication with Snow Leopard network, CBD and GSLEP representatives and the wider conservation community.	5.1. Working paper outlining effectiveness of interventions on losses, income and attitudes incorporated into SLCF, SLFP, SLFK strategic planning and distributed to Snow Leopard Network and appropriate CBD and GLSEP contacts by yr 3	Draft Paper completed: Coexisting with carnivores - the effectiveness of collaborative conservation initiatives across five countries. Findings will be distributed once paper published, expected in by September 2018.
	5.2. Manuscript prepared on effectiveness of interventions on losses, income and attitudes by yr3	Draft Paper completed: Coexisting with carnivores - the effectiveness of collaborative conservation initiatives across five countries.
	5.3. Best practice in conservation interventions shared with international field teams yr 3	Articles developing best practice shared with field teams: Partners principles by Mishra and Paper (Mishra, C., Young, J.C., Fiechter, M., Rutherford, B. and Redpath, S.M., 2017. Building partnerships with communities for biodiversity conservation: lessons from Asian mountains. Journal of Applied Ecology, 54(6), pp.1583-1591.
Activities		NA—planned for YR3

Annex 3 Standard Measures

We use these figures as part of our evaluation of the wider impact of the Darwin Initiative programme. Projects are not evaluated according to quantity. That is – projects that report few standard measures are not seen as being of poorer quality than those projects which can report against multiple standard measures.

Please quantify and briefly describe all project standard measures using the coding and format of the Darwin Initiative Standard Measures. Download the updated list explaining standard measures from

<http://darwin.defra.gov.uk/resources/reporting/>. If any sections are not relevant, please leave blank.

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
Training Measures							
1a	Number of people to submit PhD thesis	0					
1b	Number of PhD qualifications obtained	0					
2	Number of Masters qualifications obtained	0					
3	Number of other qualifications obtained	0					
4a	Number of undergraduate students receiving training	1	1 Mongolian student	1 male	Double Observer training	English/Mongolian	
4b	Number of training weeks provided to undergraduate students	2 weeks	1 Mongolian student	1 male	Double Observer training	English/Mongolian	

4c	Number of postgraduate students receiving training (not 1-3 above)	2	2 Mongolian student	2 females	Double Observer training	English/Mongolian	
4d	Number of training weeks for postgraduate students	2 weeks	2 Mongolian student	1 male	Double Observer training	English/Mongolian	
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification (e.g., not categories 1-4 above)	0					
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	42 Champions; 37, Field implementors	Mongolia, India, Kyrgyzstan, China, Pakistan	13 female champions. 29 male champions	Partners Principles	Local language/English	

6b	Number of training weeks not leading to formal qualification	2 weeks	Mongolia, India, Kyrgyzstan, China, Pakistan				
7	Number of types of training materials produced for use by host country(s) (describe training materials)	3 Champion toolkit. Translated each language	Mongolia Kyrgyzstan Pakistan				
Research Measures		Total	Nationality	Gender	Title	Language	Comments/ Weblink if available
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (ies)	1	Mongolia	-	Tost Nature Reserve	Mongolian	Partly a result of the Darwin Project

10	Number of formal documents produced to assist work related to species identification, classification and recording.	0					
11a	Number of papers published or accepted for publication in peer reviewed journals	1			Mishra, C., Young, J.C., Fiechter, M., Rutherford, B. and Redpath, S.M., 2017. Building partnerships with communities for biodiversity conservation: lessons from Asian mountains. Journal of	English	

					Applied Ecology. doi: 10.1111/ 1365- 2664.12 918		
11b	Number of papers published or accepted for publication elsewhere	0					Location?
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	6				English	Fulcrum database for Corrals; household data and community data. Snow Leopard camera trap photographs for each respective country (Mongoloa, Pakistan, Kyrgystan) All data has been handed over to host countries
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	0					

13a	Number of species reference collections established and handed over to host country(s)	0					
13b	Number of species reference collections enhanced and handed over to host country(s)	0					

Dissemination Measures		Total	Nationality	Gender	Theme	Language	Comments
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	0					
14b	Number of conferences/seminars/workshops attended at which findings from Darwin project work will	9	British	1 male, 1 female	Darwin project.	English	

be presented/ disseminated.							
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Physical Measures		Total	Comments
20	Estimated value (£s) of physical assets handed over to host country(s)	0	
21	Number of permanent educational, training, research facilities or organisation established	0	
22	Number of permanent field plots established	3	Control community landscapes in each country (n=3)

Financial Measures	Total	Nationality	Gender	Theme	Language	Comments
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23	Value of additional resources raised from other sources (e.g., in addition to Darwin funding) for project work						
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Annex 4 Aichi Targets

Please note which of the Aichi targets your project has contributed to.

Please record only the **main targets** to which your project has contributed. It is recognised that most Darwin projects make a smaller contribution to many other targets in their work. You will not be evaluated more favourably if you tick multiple boxes.

	Aichi Target	Tick if applicable to your project
1	People are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	X
2	Biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	X

3	Incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.	X
4	Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	
5	The rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	
6	All fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	
7	Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	
8	Pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	

9	Invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	
10	The multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	
11	At least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	
12	The extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	
13	The genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	
14	Ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	

15	Ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	
16	The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.	
17	Each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.	
18	The traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	X
19	Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	

20	The mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.	
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Annex 5 Publications

Provide full details of all publications and material that can be publicly accessed, e.g. title, name of publisher, contact details. Mark (*) all publications and other material that you have included with this report

Type * (e.g. journal s, manual, CDs)	Detail (title, author, year)	Nationalit y of lead author	Nationalit y of institutio n of lead author	Gender of lead author	Publisher s (name, city)	Available from (e.g. web link, contact address etc)
Journal of Applied Ecology.	Mishra, C., Young, J.C., Fiechter, M., Rutherford, B. and Redpath, S.M., 2017. Building partnership s with communitie s for	India	India	Male	Journal of Applied Ecology, London	http://aura.abdn.ac.uk/handle/2164/10453

	biodiversity conservation: lessons from Asian mountains.					

Annex 6 Darwin Contacts

To assist us with future evaluation work and feedback on your report, please provide details for the main project contacts below. Please add new sections to the table if you are able to provide contact information for more people than there are sections below.

Ref No	22-044
Project Title	Collaborative Conflict Management for Community Livelihoods and Conservation
Project Leader Details	

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Role within Darwin Project	PI
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Annex 7 Supplementary material (optional but encouraged as evidence of project achievement)

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	x
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	x
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number.	No
Have you involved your partners in preparation of the report and named the main contributors	yes
Have you completed the Project Expenditure table fully?	yes
Do not include claim forms or other communications with this report.	