

## Conservation Leadership Programme: Final Report

### Reducing Human-Snow Leopard Conflict in Upper Spiti Valley, India.

Conservation Follow-up Award

Project ID: 2462

Host country: India

Site: Spiti Valley, Himachal Pradesh, India

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Names of author(s):

1. Kulbhushansingh Suryawanshi
2. Rishi Sharma
3. Radhika Timbadia
4. Ajay Bijoor
5. Kalzang Gurmet

Contact address:

Nature Conservation Foundation, 3076/5 IV Cross, Gokulam Park, Mysore (Karnataka), 570002

Tel: +91 821 2515601

Fax: +91 821 2513822

Correspondence Email: [ajay@ncf-india.org](mailto:ajay@ncf-india.org) or [kulbhushan@ncf-india.org](mailto:kulbhushan@ncf-india.org)

Website: <http://ncf-india.org/>

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## Summary & Background

### Summary

The goal of our project was to reduce negative attitudes towards snow leopards and associated wildlife in Upper Spiti Valley landscape through a multi-pronged approach towards community-based conservation. We had identified nine high priority villages in which to initiate community-based conservation programmes, based on our previous CLP project.

In the last two years we worked with village communities in these nine villages and developed plans to address specific challenges faced by them due to wildlife. Measures were implemented and managed by local communities themselves, while we helped in setting up these interventions and subsequently in monitoring them. Since 2015, we initiated two or more measures in six of the nine villages identified, while starting at least one initiative in the remaining three villages.

Through these interventions we are building a relationship with these village communities, which fall within areas of high wildlife value. These village communities now approach us to address any problems due to wildlife rather than causing them any harm.

We continue to conduct surveys to monitor wildlife (wild prey and snow leopards) and the losses caused by them in the landscape, which helps us monitor the actual trends in wildlife abundance and the damage they cause.

### Background

The dry alpine areas occurring above the treeline which are preferred snow leopard habitats are expected to move higher up with increasing global temperature. These regions are also inhabited by agropastoral communities who depend on the local ecosystem for their livelihoods. The impacts of global climate change are expected to reduce the available snow leopard habitat as also affect lives of communities residing in these areas.

Snow leopards are a flagship species and likely drivers of high altitude ecosystem processes. Negative attitudes of local people contribute to persecution of snow leopard. Our previous research determined key drivers influencing negative attitudes. Actual and perceived loss of livestock due to predators called for expanded compensation programs. Women were seen to have more negative attitudes than men, yet no interventions targeted women. Prey recovery programs, which could

increase depredation pressures on livestock, required increased programs for protecting livestock. Overall, we say a critical need for multi-pronged approach across the landscape.

Research has shown that improving land management (e.g. community nature reserves) and livestock husbandry practices lead to net reduction in greenhouse gases via improved soil carbon sequestration. The annual net offset of greenhouse gases through improved land-use was estimated at over 40 tons of CO<sub>2</sub> per km<sup>2</sup> per year (Bagchi & Richie 2010). Part of this project was aimed at increasing the amount of land covered under nature reserves in Spiti, which was c. 60 sq. km. in 2014.

Low-income communities were seen as being particularly susceptible to the effects of global climate change, including crop failures and natural disasters. Economic stress could increase stress on natural resource use. This project also aimed at providing sustainable forms of alternative income (handicrafts sales) and income support (protection from loss via corrals and compensation via insurance) to help communities better weather the economic impacts of these changes.

In this project, our aim was to work with these communities to develop multi-pronged conservation interventions aimed at addressing conflicts arising from interactions with wildlife and improving attitudes of local pastoralists towards wildlife of the region.

## Objectives, Activities and Outputs

### Objective 1: Community Conservation Program Plans in place and guiding development of multi-pronged conservation approach in each target community

Activities	Outputs	Forthcoming activities planned
<ol style="list-style-type: none"> <li>1. Assessments completed in each community to inform plans</li> <li>2. Recommendations developed and discussed with communities</li> <li>3. Plans finalized and shared with stakeholders</li> </ol>	<p>Assessments completed for 9 villages, and Community Conservation Program Plans created for each village through process of resource and conflict mapping. As part of these assessments, the following threats were identified, and suitable conservation intervention(s) recommended to address the threats:</p> <ol style="list-style-type: none"> <li>1. Reduce drivers of negative attitudes towards snow leopards and wildlife in general—pilot a handicrafts-based conservation-linked enterprise that provides women with income to offset livestock losses to predation</li> <li>2. Loss of livestock due to snow leopards and wolves—expand community-run livestock insurance programme</li> <li>3. Loss of livestock, specifically due to carnivores lifting livestock from poorly built corrals—pilot a programme to reinforce poorly built corrals making them inaccessible for wild carnivores through a co-financed corral reinforcement programme</li> <li>4. Support healthy wild prey base to reduce depredation pressure on livestock—expand the network of local nature reserves where local community set aside pastures free from livestock grazing with the idea that these pastures become available to wild prey species: bharal and ibex</li> </ol>	<p>We have sustained engagement with nine identified village communities since the start of the project. The interventions set up through the course of the project are being continued beyond the current project period, through support raised jointly by our team and our partners the Snow Leopard Trust. We plan to do attitude surveys in villages where we have multiple interventions, and compare them to those where we have a single intervention and no intervention.</p>

Activities	Outputs	Forthcoming activities planned
	<p>5. Reduce negative attitudes towards wild prey due to crop damage by wild prey species: bharal and ibex, which are the primary prey species of the snow leopard—identify the months of crop damage and pilot a programme to hire a local guard(s) to keep wild prey out of agricultural fields</p> <p>6. Control livestock predation by free-ranging dogs, which now cause the highest rate of livestock depredation across this region and are competing with snow leopards—pilot initiatives to improve garbage management efforts at the village-level, since garbage sustains the dogs and contributes to their increased population</p> <p>Community Conservation Program Plan documents were ratified and copies shared with the community, under management of the community council, and a copy kept with NCF.</p>	

**Objective 2: Maintain and expand existing, successful community conservation programs (livestock insurance and local nature reserves). Insurance provides economic buffer to address negative attitudes caused by loss of livestock to snow leopard depredation; reserves support healthy wild prey base to reduce depredation pressure on livestock.**

Activities	Outputs	Forthcoming activities planned
<ol style="list-style-type: none"> <li>1. Meetings held with communities to monitor existing insurance and reserve programmes.</li> <li>2. Based on Community Conservation Plans, meetings held with additional communities to start insurance and/or reserve programs in new sites.</li> <li>3. Skills trainings provided in all insurance and reserve program communities, as necessary, to improve capacity toward program management (e.g. funds accounting, claims processing)</li> <li>4. For communities starting new insurance and/or reserve programs, baseline data collected (including reserve boundaries), where deficient</li> </ol>	<ol style="list-style-type: none"> <li>1. The livestock insurance programme has been running <b>since 2002</b>. Meetings were held with each village-level committee at least twice a year, to monitor the functioning. Meetings held with 3 existing insurance programmes, and 4 reserve programmes. This helped monitor functioning to ensure program success.</li> <li>2. Initiated conservation interventions jointly with village-level committees chosen within the local community. Adapted conservation intervention(s) based on conflict mapping done with the local community, to make the programmes more effective. There were no additional communities starting insurance, however we guided the insurance committee to bring new members on-board. We were able to expand the local nature reserves to cover an area of <b>c. 500 sq.km (from 60 sq.km at beginning of this project)</b>. <b>Two new reserves</b> were set up. These are community held pastures being set aside by the villagers upon payment of an annual honorarium to the village.</li> <li>3. Local community reserve guards were appointed for each of the reserves. The guards were <b>guided in survey techniques and camera trapping</b>. In addition they have been ensuring that stray livestock are removed from the reserves. Guards receive a monthly honorarium for they involvement.</li> <li>4. For new reserves, the area of the <b>reserve was surveyed and boundaries marked</b> before they formally set up, while working with the village community.</li> </ol>	<p>We look to extend our interventions within the landscape and also sustain our relations with the local community, who are our partners in conserving wildlife in these high altitude regions.</p>

Activities	Outputs	Forthcoming activities planned
<p>5. Conservation payments disbursed to communities to support program operations</p> <p>6. Program progress data collected (e.g. participation, # livestock insured, etc.)</p> <p>7. Prey surveys completed in and around reserves</p> <p>8. Livestock depredation surveys completed</p>	<p>5. For livestock insurance programs, there were <b>19 cases</b> of livestock predation by snow leopards or wolves in 2015, and <b>28 cases</b> of livestock predation in 2016. The compensation pay out was <b>USD 1,109 in 2015</b>. The compensation pay out was <b>USD 2,067 in 2016</b>. The compensation in 2016 was doubled after the community agreed to double the premium they contributed to insure their livestock. For grazing-free reserves, <b>local guards</b> hired to ensure that these pastures remain free from livestock grazing, and provided with honorarium.</p> <p>6. Program progress data collected for insurance as follows: The number of livestock insured under the programme was <b>237 livestock (2015)</b> owned by <b>77 families</b>, which increased to <b>278 livestock (2016)</b> owned by <b>69 families</b>. (Compensation rates covered in #5 above.)</p> <p>7. <b>Annual surveys for wild prey abundance completed</b> over the course of a month. The results show that the <b>population of bharal and ibex is stable in these pastures</b>. Manuscript based on the results for <b>publishing in a peer-reviewed journal</b> is currently under progress.</p> <p>8. <b>Annual livestock depredation surveys completed</b> over a fortnight, covering 28 villages. Free-ranging dogs kill <b>more</b> livestock than snow leopards and wolves combined. Manuscript based on the results for <b>publishing in a peer-reviewed journal</b> is currently under progress.</p> <p>Additional outputs:</p> <p>Crop Guard Programme—we initiated a new program to guard crops from depredation by wild ungulates and reduce negative attitudes to wild snow leopard prey.</p>	



Activities	Outputs	Forthcoming activities planned
	<ol style="list-style-type: none"> <li>1. Identified <b>four villages vulnerable to crop damage</b> by wild prey. Our analysis showed that agricultural fields that were close to cliffs were being accessed selectively by bharal and ibex.</li> <li>2. The period of damage was in a <b>five month period (May-September)</b> and greatest when tender sprouts would emerge (May) and then closer to the harvest (August-September) with sporadic damage in between.</li> <li>3. Coverage: <b>Hired local guards</b> for the five month period in 2015 and 2016 to keep wild prey out of the fields. The participating villagers included Kibber (1 guard), Gete (2), Tashigang (1), and Demul (1).</li> </ol> <p>We also piloted initiatives to improve garbage management efforts at the village-level to help reduce feral dog populations, which have shown to be an emerging threat to snow leopard:</p> <ol style="list-style-type: none"> <li>1. Initiated methods to improve garbage disposal aimed at <b>controlling resource access to free-ranging dogs</b> in the region that have been preying on livestock and competing with snow leopards. Efforts to sterilise free-ranging dogs have been initiated separately in the valley.</li> <li>2. Coverage: Set up garbage enclosures with communally decided rules for disposal of garbage in <b>two villages and a local monastery</b>. The participating villages included Kibber and Kee along with the famous Kee Monastery of Spiti.</li> </ol>	

**Objective 3: New pilot programs (handicrafts for women and corral-building) developed and launched to address unmet drivers of negative attitudes. Handicrafts provide women with income to offset livestock losses to predation; corrals reduce actual rates of livestock predation.**

Activities	Outputs	Forthcoming activities planned
<ol style="list-style-type: none"> <li>1. Key elements of handicraft program model (logistics, distribution, and marketing) finalized at the NGO level.</li> <li>2. Based on Community Conservation Plans, meetings held with communities to start handicraft and/or corral-building programs.</li> <li>3. Baselines collected where deficient.</li> <li>4. Handicraft skills and product quality training provided to women crafters.</li> <li>5. Handicraft orders placed.</li> <li>6. Handicraft orders collected and sent to distributor.</li> </ol>	<p>The following outputs and coverage were achieved for each conservation intervention that were put in place:</p> <p>Pilot a handicrafts-based conservation-linked enterprise that provides women with income to offset livestock losses to predation</p> <ol style="list-style-type: none"> <li>1. Efforts to start Snow Leopard Enterprises (SLE) a handicrafts-based conservation-linked enterprise had been made since 2012. During the project period we were able to <b>consolidate and expand</b> our efforts in this area. All <b>raw materials and equipment</b> required for the production was procured in advance and provided to the participants. All the finished products were procured from the women and were <b>marketed</b> online and through trade exhibitions. All <b>proceeds from the sales</b> were paid back to the women.</li> <li>2. Based on meetings with the <b>women's self-help groups</b> in villages, we sort wider participation from local women. By the end of the project, we had <b>57 participants from 5 villages</b>.</li> <li>3. Work from our previous CLP project showed that women <b>harboured negative perceptions</b> towards wildlife. Results published as <i>Suryawanshi et al (2013) People, predators and perceptions: patterns of livestock depredation by snow leopards and wolves. Journal of Applied Ecology. 50: 550-560.</i></li> </ol>	<p>We look to extend our interventions within the landscape and also sustain our relations with the local community, who are our partners in conserving wildlife in these high altitude regions.</p>

Activities	Outputs	Forthcoming activities planned
<p>7. Corral supplies purchased and transported to communities.</p> <p>8. Corrals built in collaboration with communities.</p> <p>9. Program progress data collected.</p> <p>10. Livestock depredation surveys completed.</p>	<p>4. Participating women were provided training and equipment to make handmade products that were marketed under the brand 'SHEN'. <b>Training for knitting and crochet</b> were held in December 2016 and November-December 2017. All <b>raw materials</b> required for the training and production was procured in advance and provided to the participants.</p> <p>5. In the first year (2015-16) with <b>46 women participants, we paid USD 459</b> for sample products, which we tested the market. We paid <b>57 SLE participants a total of USD 1,325</b> for products made in the second year of our project. Participants earned an average of <b>USD 24 each</b>. All products were sold at craft fairs and festivals in several Indian cities. SLE participants were very excited to get their first order from an <b>Indian fashion house</b>. We provided materials and paid them a total of <b>USD 830</b> for the order, which was picked up at the end of May 2017.</p> <p>6. The procured products were sold online and through exhibitions. Participant women also attend trade fairs where they <b>managed</b> the product stall and also <b>interact</b> directly with visitors.</p> <p>7. Women earned a <b>conservation-bonus</b>, in addition to the income from the sale of their products, for honouring a pre-decided conservation commitment at the start of the year. Participant women ensure that there is <b>no harm to wildlife</b> in the extended areas around their village. We found no evidence of contractual violations and were thus able to reward 46 women a total of <b>USD 265 (20% of USD 1,325)</b> in April, 2017 as a <b>conservation bonus</b>.</p> <p>8. While the pay-outs are nominal, the enterprise is providing an <b>opportunity they never had before</b>. For example several of the participants have opened and operate</p>	

Activities	Outputs	Forthcoming activities planned
	<p>their <b>first bank account</b>; some others have had the opportunity to <b>travel outside Spiti</b> for the first time in their lives for capacity-building training and managing sales at exhibitions across India.</p> <p>9. This programme is <b>our first engagement with women</b> of the region, who had previously been left out of the conservation dialogue. Women currently ensure that they will try to <b>prevent any damage to wildlife</b> by people, in and around their villages.</p> <p>10. Coverage: 57 participant women from five villages: Kibber, Chichim, Kee, Gete and Tashigang.</p> <p>Pilot a programme to reinforce poorly built corrals:</p> <ol style="list-style-type: none"> <li>1. Identified a cluster of <b>two villages and two hamlets</b> that were particularly vulnerable to livestock attacks inside corrals. All the equipment required for the <b>building of corrals was sourced</b> from adjoining towns.</li> <li>2. Worked with the villagers to devise a mechanism to <b>co-finance</b> the reinforcement of vulnerable corrals. We will check on the corrals annually for any damage/need for repair.</li> <li>3. The corral reinforcement was made for homes that were <b>closer to snow leopard habitats</b> (cliffs), since these homes were prone to attack. In all <b>26 vulnerable corrals</b> were identified with the villagers and were reinforced.</li> <li>4. <b>No losses</b> have been reported by attacks inside corrals since the reinforcement. Our local staff visits the villages <b>at least twice a year</b>.</li> </ol>	

Activities	Outputs	Forthcoming activities planned
	<p>5. All corrals are currently <b>in good condition</b>, with no need for repairs.</p> <p>6. <b>Annual livestock depredation surveys completed</b> over a fortnight, covering 28 villages. Free-ranging dogs kill <b>more</b> livestock than snow leopards and wolves combined. Manuscript based on the results for <b>publishing in a peer-reviewed journal</b> is currently under progress.</p> <p>7. Coverage: This programme covers <b>two villages</b> of Lalung and Rama along with <b>two adjoining hamlets</b> of Chubrang and Salung.</p>	

There were no changes to the original project plan. We were able to add a few more conservation interventions, which emerged out of the conservation planning we did along with the local community. These interventions were designed to address specific challenges faced by locals within the nine villages we had identified.

## Achievements and Impacts

### Achievements

1. Initiated community-based **conservation programmes in 9 high priority villages**. Each programme was started after making initial contact with the village community, discussing their concerns due to wildlife, and identifying multi-pronged interventions to address the concerns that were managed by the village community.
2. Started an **engagement with women** who have traditionally been left out of the conservation dialogue. Through SHEN, a handicrafts-based enterprise, 57 women from five villages now support the conservation of wildlife around their village(s) and the wider landscape.

### Impacts

1. **No** reports of retaliatory killing of wild carnivores despite losses of livestock.
2. Insured over **250 livestock annually** through a community-based insurance programme with c. 70 participant families. Compensated death of 47 livestock killed by snow leopards or wolves, in the two year period (2015-16) with a **compensation pay out of USD 3,176**.
3. Reinforced **26 corrals** that were vulnerable to livestock attacks by snow leopards or wolves. No losses reported due to attacks inside corrals since reinforcement.
4. Expanded the local nature reserves to cover an area of **c. 500 sq.km.** from c. 60 sq.km, which can potentially offset greenhouse gas emissions to the tune of **20,000 tons of CO<sub>2</sub> per year** (Bagchi & Richie 2010)
5. Identified agricultural fields vulnerable to crop damage by wild prey. Controlled these losses by **deploying local guards** to keep wild prey out of such fields.
6. Initiated methods to **improve garbage disposal** aimed at controlling resource access to free-ranging dogs in the region.
7. Abundance estimates for wild prey and snow leopard densities done through camera trap studies point to **stable snow leopard and wild prey populations in the landscape**.

## Problems encountered and lessons learnt

1. Community-based conservation is a **time consuming** endeavour. It requires a basic level of trust to be built between the community and the conservation agency, before an intervention can be initiated. We were able to initiate two or more measures in six of the nine villages identified (Kibber, Chichim, Kee, Gete, Tashigang, Lalung), while starting at least one initiative in the remaining three villages (Langza, Demul, Rama). This is below the target of starting two or more measures in all nine villages, that we had foreseen earlier. The villages with a single intervention are open to working on more interventions that are relevant to their village. We intend to work with these communities and opportunistically extend our work based on the requirement.

Village Name	No. of Interventions running	Comments
Kibber	<b>5 interventions:</b> Shen—handicrafts based women's enterprise, livestock insurance, local nature reserve, guards to prevent crop damage, effective garbage management.	Village with c. 75 households and oldest village with which we have a relationship. Also the first community with whom we test implementation of new interventions.
Chichim	<b>3 interventions:</b> Shen—handicrafts based women's enterprise, livestock insurance, local nature reserve.	Village with c. 70 households and adjacent to Kibber. We have been active for many years hence more receptive to implementing conservation interventions.
Kee	<b>3 interventions:</b> Shen—handicrafts based women's enterprise, livestock insurance, effective garbage management.	Village with c. 70 households. We have been less active around this village and the current project allowed us to increase working with them.
Gete	<b>2 interventions:</b> Shen—handicrafts based women's enterprise, guards to prevent crop damage.	A village with 6 households with clearly identified threats and requirements.

Village Name	No. of Interventions running	Comments
Tashigang	<b>2 interventions:</b> Shen—handicrafts based women’s enterprise, guards to prevent crop damage.	A village with 6 households with clearly identified threats and requirements.
Langza	<b>1 intervention:</b> Local nature reserve.	Village with c. 50 households. We made first contact with this village during the current project, which allowed us to start working with them.
Demul	<b>1 intervention:</b> Guards to prevent crop damage.	Village with c. 70 households. We made first contact with this village and the current project, which allowed us to start working with them.
Lalung	<b>2 interventions:</b> Reinforcement of vulnerable corrals, local nature reserve.	Village with c. 75 households. We have been less active around this village and the current project allowed us to start working with them.
Rama	<b>1 intervention:</b> Reinforcement of vulnerable corrals.	A village with just 11 households with clearly identified threats and requirements. We made first contact with this village and the current project allowed us to start working with them. We also implemented these measures for two adjoining hamlets with five households in all.

2. Creating conditions favourable for conservation requires tremendous amounts of **capacity-building at the local level**. A great deal of effort was spent in identifying local champions who were sensitive



to our work and channelling the conservation dialogue through them. Keeping the motivation of these local champions high (they are non-paid resources) can be hard, but important, in the long-term.

3. The working season in Spiti valley extends through the non-winter months (June-October) and hence offers a **narrow window within which to execute most of the work**. Likewise, women who participated in the handcrafts-based enterprise were free only during the winter months (December-February). All of this meant we had to meticulously plan our efforts in order to ensure that we were able to execute our work as per the schedule.

## Stories and Anecdotes from the Field

### *A village mourns a snow leopard*

*(Text and pictures by Kalzang Gurmet, team member CLP Follow-up Grant)*

One February morning, after a heavy snowfall, I was busy clearing up my terrace when I suddenly heard a boy scream. Assuming the boy might have spotted something at the cliff, I decided to ignore him and focus on finishing my task of clearing the snow. But just a short while later, to my surprise, I saw a gentleman running towards the cliff with a huge lens on his shoulder, followed by a local carrying another set of lenses to assist him.

Soon, I heard my neighbour scream “Shen Shen”, which meant a snow leopard had been spotted at the cliff. I could not miss this opportunity and rushed to my room to pick up my camera and headed to the cliff. By then, several villagers had gathered at the cliff to get a glimpse of the cat.



*An old snow leopard was spotted close to Kibber village.*

The following morning, I heard the villagers claim to have spotted the snow leopard again. This increased my curiosity, and I decided to visit the cliff once more. More villagers had gathered there to take pictures, along with an elderly gentleman from Ladakh who knew a lot about wild carnivores. He told us that the snow leopard visiting the village was very old. He said that when wild carnivores

turn old, their teeth turn yellow in colour, which was the case with this snow leopard as well. None of us believed his theory, and we concluded that he was exaggerating.

However, the snow leopard slept the entire day and occasionally looked at us trying to tell us “Leave me alone”. It barely moved.

We concluded the snow leopard was indeed old and hence was unable to hunt any longer. Some of the villagers were considerate enough to offer the carcasses of their livestock to the old animal, so that it could survive for few more days.

We continued to visit the resting animal every day, for about a week. By now, the entire village knew about the animal, and everyone gathered at our observation spot to take pictures. After a few days of struggle, the snow leopard indeed drew its last breath and passed away. The news spread like wildfire around the valley, and a lot of us visited the spot.

The dead animal was eventually recovered and brought to the village in the presence of the forest department personnel.



*Villagers gather to pay their respects to the dead cat, which had died of natural causes.*

All the villagers gathered to see the snow leopard, and one of the women questioned the forest official “R.O sahab yeh snow leopard mera dus sheep kha liya lekin phir bhi itna kamjor kyon hai” (this snow leopard has eaten ten of my sheep, why is it so weak?) We explained to her that the cat had died of old age, as it had become too old to hunt. I was touched to see that some of the villagers carried Khataks, a white scarf traditionally worn to pay respect at the demise of particularly honourable people.

The animal was then cremated and laid to rest.

Livestock predation by snow leopards in our village has been very high for a long time. Snow leopards enter the corrals and kill livestock.

In the past people resorted to retaliatory killing to protect their livestock. But things have changed now. Conservation work has taken root, and tolerance is much higher.

After witnessing what happened here last month, I am convinced that the people of Kibber genuinely love the snow leopard and want to work for a bright future for this cat. I am proud to say that times have changed and people in Kibber respect wildlife and wish to live in harmony with them.

Republished from: <https://www.snowleopard.org/village-mourns-snow-leopard/>

### ***Socks for dinner?!***

***(As told by Dolma Chhering, participant in Snow Leopard Enterprise)***

When Dolma Chhering began working with the Snow Leopard Enterprise in Kibber, she ended up spending most winter days knitting. On one such winter evening her husband mocked her “So do we eat these socks for dinner?” Dolma Chhering refrained from commenting back.

At the end of winter, Dolma Chhering was able to sell the socks through Snow Leopard Enterprise. “When I brought home the money, I could see a spot of surprise on his face. The comments have stopped. He also gets me cups of tea now, when he sees me knitting”



*Dolma Chhering showing off the mufflers that she now makes*

## Future planned activities

We hope to continue working in the Upper Spiti area to:

8. Scale the SHEN handicraft enterprise with local women to improve livelihood opportunities for local women and help improve their attitudes towards wildlife of Spiti valley.
9. Continue monitoring of snow leopard, wild prey, and livestock population to serve as early warning from emerging threats.
10. Set up community-based conservation interventions based on threat assessments made for villages prone to conflict with wildlife within the landscape.

We also hope to extend our work to cover the entire trans-Himalayan range in the State of Himachal Pradesh, which cover areas adjoining Spiti and is a potential snow leopard habitat. We hope to proceed through:

11. Systematic surveys to assess the abundance of snow leopards and wild prey species across the landscape.
12. Evaluate the threats to wildlife in these areas.
13. Start working with the local community to reduce conflict due to wildlife.

**We intend to apply to the Conservation Leadership Award in 2017, to take our work forward.**



## Appendices

### Media articles relating to the project

- [Project SHEN](#) – an article on our handicrafts based enterprise published by [The Better India](#) (April 2017)
- [The Leopard's friend](#) – an article about our work in Spiti published in The Tribune (October 2016)
- [Can helping women achieve financial freedom help the environment too?](#) – an article that features Snow Leopard Enterprises published by Mongabay (August 2016)
- [Cover from the predator](#) – an article featuring our community-based insurance programme published by The Hindu Businessline (February 2016)
- [Ghost of the Mountain](#) – an article on our ongoing work in Spiti published in the BBC Wildlife Magazine (February 2016)
- [The Indian village learning to live in harmony with snow leopards](#) – an article about our work in Kibber where we started working more than a decade ago published by The Guardian (December 2015)

### Ecological inventories

- The **population of snow leopards has been stable**, with an estimated density ranging between 0.8 to 1.08 individuals per 100 sq.km. i.e. nearly 14-18 adult snow leopard individuals.
- The populations of wild prey like the ibex and blue sheep **has been stable** in the Upper Spiti Landscape.

**Methodologies** – Contributions to book chapters in Mishra. C (2016), The Partners Principles for community-based conservation. Snow Leopard Trust, Seattle, USA.

- Suryawanshi. K., et al. (2016). Setting Up Conservation-Linked Livelihood Mechanisms: Case Study of Snow Leopard Enterprises. Mishra. C (2016), The Partners Principles for community-based conservation (109-126). Snow Leopard Trust, Seattle, USA.
- Suryawanshi. K., Timbadia. R., Bijoor. A., et al. (2016). Setting up Mechanisms to Offset Wildlife-Caused Economic Damage: Community-Based Livestock Insurance. Mishra. C (2016), The Partners Principles for community-based conservation (127-148). Snow Leopard Trust, Seattle, USA.

### Publications so far (includes Future conservationist and Conservation follow-up grant project):

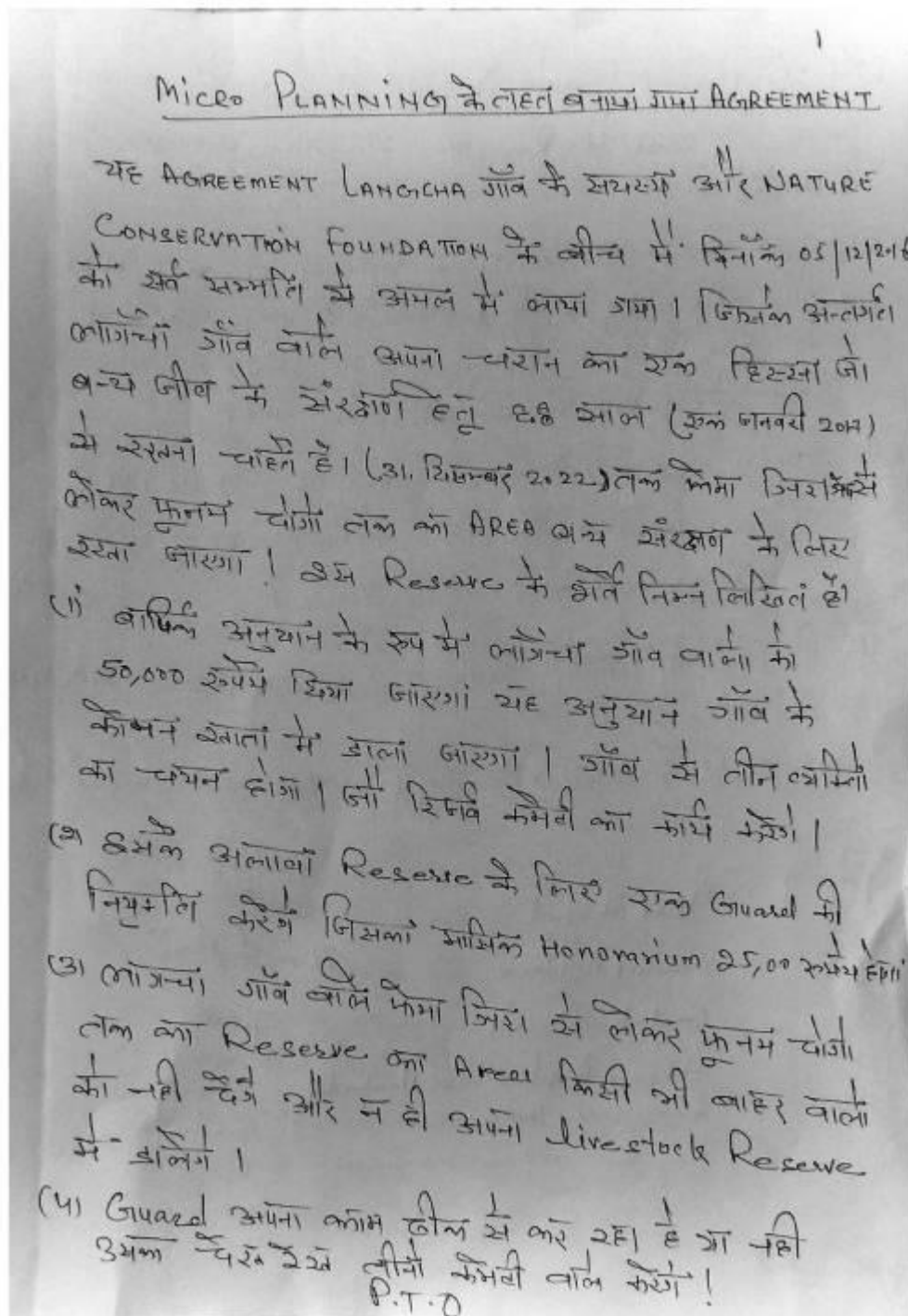
- Scientific paper published: Suryawanshi et al (2012) standardizing the double observer survey method to estimate the mountain ungulate prey of the snow leopard. Oecologia. 169: 581-590.

- Scientific paper published. Suryawanshi et al (2013) People, predators and perceptions: patterns of livestock depredation by snow leopards and wolves. *Journal of Applied Ecology*. 50: 550-560.
- Suryawanshi, K. R., Bhatia, S., Bhatnagar, Y. V., Redpath, S., & Mishra, C. (2014). Multiscale factors affecting human attitudes toward snow leopards and wolves. *Conservation biology*, 28(6), 1657-1666.
- Suryawanshi, K. R., Redpath, S. M., Bhatnagar, Y. V., Ramakrishnan, U., Chaturvedi, V., Smout, S. C., & Mishra, C. (2017). Impact of wild prey availability on livestock predation by snow leopards. *Royal Society Open Science*, 4(6), 170026.

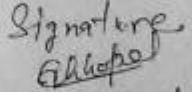
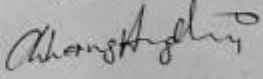
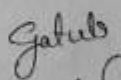
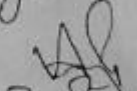
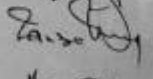
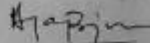


## Village-level agreements

Village-level agreements are signed with the villages with whom we engage for a specific conservation intervention. The agreement is signed by a group of representatives from the village who manage the programme/intervention on behalf of the village. It is also signed by our team members. The agreements list the details of interventions that we jointly implement in the village. The sample agreement below is one signed with the village of Langza to set up a grazing-free nature reserve on community-held land for a period of 6 years (2017-2022) in return for a payment of INR 60,000/- (USD 925) per annum, to the village which will be used for community work by the villagers.



- (5) पुराने रिती रिवाजों के तहत ही जाँव वाल साल में एक ही दिन में Rescue से जाला (Recognition) निकालेंगे।
- (6) अगर किसी जाल बाल की आकाल होने पर NCF और जाँव वालों के बीच समझौते के साथ उस क्षेत्र को कुछ दिनों के लिए बालों वा सकता है। अगर इसमें दोनों तरह से रजामयी होनी चाहिए।
- (7) जाणंसा Rescue के अन्तर लुहल के काम पर NCF को कोई जाल बाल नहीं होना। लेकिन वहाँ के व-यजीव पर कोई नुकसान नहीं पहुँचा सकता।
- (8) Rescue के विचार-विमर्श करे साल में दो बार MEETINGS होना।
- जाणंसा रिजर्व कमेटियों का नाम वे इस्ला कर दो प्रकार है।

Sr.No	NAME	Signature
①	Yeshi Chhotpal	
(2)	Chharing Angdue	
(3)	Gratuk Chharing	
(4)	Chharing Angdue Lasa Nambarbar	
(5)	Tangthi Thintery (NCF Coordinator)	
(6)	Ajay Bijoor (NCF Project Associate)	



*Development of conservation plans and discussions in village Tashigang: (Pic 1)*



*Participants of Shen show off their products: (Pic 2)*





*A meeting in the livestock insurance participants of Kibber: (Pics 3)*



*Discussions about protection from crop damage in village Demul: (Pic 4)*





***Wildlife monitoring in the local nature reserve of village Chichim: (Pic 5)***



***Reinforcement of vulnerable corral windows in Rama: (Pic 6)***





*Participants of Shen meet other women's run enterprise from Kumaon in India: (Pic 7)*

