

# **Trailing the Snow Leopard: Sustainable Wildlife Conservation in Ladakh (India)**

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## **ABSTRACT**

Ladakh hosts a wide range of wildlife populations which concerned parties have struggled to conserve in light of wildlife conflicts with humans. Most conservation programs have focused on managing villager conflicts with the region's top predator, the snow leopard, because the health of a top predator's population indicates and thus determines the health of other flora and fauna in its habitat. Programs have also recognized the struggles of villagers, who often suffer losses of livestock due to the presence of local predators. As a result, villagers have been known to kill the responsible animals as acts of retribution or prevention. In this study I researched and examined these conservation programs and analyzed them in comparison to Ladakhi perspectives toward wildlife and wildlife conservation, with a particular focus on snow leopards. Programs fall into four categories: livestock reimbursement, education in schools, homestay programs, and other conflict control programs. The Department of Wildlife Protection of the Jammu and Kashmir Government, Leh District and the Snow Leopard Conservancy – India Trust spearheaded most of the programs discussed in this study. Results showed mostly neutral or positive reactions to human-wildlife conflicts and reduced but still existent occurrences of livestock predation.

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## **NOTE TO THE READER**

The region of Ladakh lies in the Indian state of Jammu and Kashmir. Ladakh consists of two districts, namely the eastern Leh District and western Kargil District. Leh is also the capitol town of Ladakh and the largest town in Leh District. The research for this project focused on Leh District, and thus any reference to “Ladakh” in the paper refers to this eastern region.

Romanized English versions of Ladakhi names often take phonetic spellings. Thus, the name of a given village may be spelled several different ways, even on government signs. For example, “Nemo,” “Nymo,” and “Nimoo” all refer to the same village. Thus, I have kept spellings consistent throughout this paper and have chosen a spelling that I feel best represents the local pronunciation of the area.

Ladakhis’ personal names consist of a first name and a second name that do not act like the Western first name and last name. An individual may be known by his or her first name among some acquaintances and by his or her second name among other acquaintances. All Ladakhis have a family name as well, but it would be incorrect to attach this as a “last” name. This cultural difference makes citing in the Western academic tradition somewhat difficult. However, in keeping with the citation used for the scholarly works of other Ladakhis, I have used a “second name, first name” citation style.

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## INTRODUCTION

Without discordant interactions between people and wildlife, there would be no need for wildlife conservation programs. Thus, according to ecologist Puja Batra, successful wildlife conservation must put a significant focus on the people and communities involved in these conflicts.<sup>1</sup> The local government, local and international NGOs, research groups, and educational groups have worked both independently and in union to improve and protect the well-being of the wildlife as well as the people who live among them in the high-altitude cold mountain desert of Ladakh. To accomplish this goal, these organizations have implemented programs to prevent or control human-wildlife conflicts. In Ladakh, the most prevalent of these conflicts are livestock depredation by large carnivores such as snow leopards and wolves and competition between domestic herders and ungulates (wild goats and sheep) for grazing land. Ecologically, healthy predator populations control wild prey populations, thus reducing the strain on grazing lands. Similarly, healthy wild prey populations provide adequate food to predators, reducing the need for predators to attack domestic livestock. Unfortunately, such laws of interconnectedness do not always dictate the actions and reactions of local peoples. Thus, villagers have been known to kill predators or chase away wild ungulates to resolve these conflicts, which in turn increases the severity of these situations. Because it lies at the top of the food chain, the status of a top predator of a region indicates the condition of its entire ecosystem. Because the snow leopard, generally recognized as Ladakh's top predator, also falls on

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<sup>1</sup> Batra, Puja. Interviewed by Lauren Satterfield. Recorded as notes. Office of the Snow Leopard Conservancy – India Trust, Ladakh, India. 15 April, 2009. These two points came of a greater discussion on the need for more social scientists in the realm of wildlife conservation.

the International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Endangered species, wildlife conservation efforts in Ladakh have placed a significant focus on this species. The goal of such efforts has been to change local peoples' perceptions of the snow leopard through education, income supplementation, and depredation prevention measures. More specifically, organizations have worked to establish formal homestay networks, systems where tourists pay to eat and sleep in the homes of local families along trekking routes as a supplementary form of income to villagers. They have also provided wildlife education to children in schools, built predator-proof livestock corrals in areas of high depredation, and helped local communities organize and establish other business systems that garner income from the presence of tourists. Thus, these organizations have addressed the most basic rules of successful wildlife conservation as they aim to resolve human-wildlife conflicts, particularly those with Ladakh's top predator, through involvement of the local communities.

## **THE SNOW LEOPARD AND OTHER WILDLIFE IN LADAKH**

### **Legislation**

Human-wildlife conflicts can hardly be classified as new phenomena. Whenever human and wildlife populations coexist, potential for conflict arises. In Ladakh, the changes that brought such conflict into the spotlight began with national and local government legislation. The Indian Wildlife (Protection) Act of 1972, revised in 2002, acted as the first nationwide legislation on wildlife protection in India. It classified "animal" as including mammals, birds, reptiles, and amphibians, their young, and where relevant, their eggs. It

defined “wildlife” as any animals or vegetation that comprise part of a habitat. It defined and protected sanctuaries and national parks, and prohibited poaching and dealing in wildlife except in cases where licensed. Finally, it classified wildlife into six schedules, and afforded highest protection to the mammals, birds, and reptiles that fall under Schedule I. The snow leopard falls under Schedule I of this act.<sup>2</sup>

The Jammu and Kashmir Wildlife (Protection) Act of 1978 (revised in 2002) takes the place of the Indian Wildlife Protection Act of 1972 (revised in 2002) in the state of Jammu and Kashmir (J&K), in which lies Ladakh. Like the nationwide act, this J&K act classifies wildlife into schedules, with endangered species listed under Schedule I of the act receiving full protection from any sort of trapping, injuring, or killing.

In 1982 the Department of Wildlife Protection officially separated from the Forestry Department under which they previously stood. From 1982 until 1989, there was a Conservator of Forests but no Wildlife Warden. In April 1989, the first Wildlife Warden, T. Norboo, was appointed in Leh District.<sup>3</sup>

In 2002, the J&K Wildlife (Protection) Act of 1978 was amended, the major amendment being a ban on all hunting and shooting and thus a complete cease of issuance of hunting permits and licenses. Previous to this 2002 revision, an interested party could acquire a permit to hunt animals in

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<sup>2</sup> “The Wildlife (Protection) Act, 1972,” Karnataka Forest Department, Government of India. [http://karnatakaforest.gov.in/English/Acts\\_Rules/acts/ Wildlife\\_Protection\\_Act\\_1972.pdf](http://karnatakaforest.gov.in/English/Acts_Rules/acts/ Wildlife_Protection_Act_1972.pdf) (accessed April 15, 2009)

<sup>3</sup> Wildlife Wardens typically hold their post for two years, but due to a lack of interested individuals, the wardens in Leh District have carried longer appointments. According to a plaque in the office of the Wildlife Warden, T. Norboo was succeeded in July 1991 by P. K. Singh (7.1991 – 7.1993), N. A. Kitchloo (7.1993 – 5.1999), A. R. Zargar (5.1999 – 5.2002), Saleem-Ul-Haq (5.2002 – 5.2007), and finally Tahir Shawl (5.2007 - present).



Schedules II, III, and IV but not Schedule I. Again, snow leopards fall under Schedule I of this act. As of the 2002 amendment, all schedules are closed for hunting in Jammu and Kashmir.<sup>4</sup> Now, under both acts, any person caught dealing, poaching, trapping, or killing any Schedule I animal in J&K or the rest of India can be sentenced to up to seven years imprisonment and fined up to 25,000 Indian rupees.<sup>5</sup> Such legislation and the mentality of conservation that drove its implementation have led to publicity in the name of wildlife protection in Ladakh.

### **Wildlife Postings in Leh District**

Visible evidence of concern for wildlife awareness is apparent to the visitor almost upon arrival in Leh. On the drive from the airport to the main bazaar, and in fact past the airport on the road out of town, the army has posted pictures of a variety of animal and plant species native to Ladakh,<sup>6</sup> each labeled with the animal's English name. Displayed wildlife include the Tibetan brown bear, the snow leopard, the Himalayan marmot, the blue sheep, the Ladakh urial, the argali, the red fox, the Tibetan wolf, the Brahmini duck, the Asiatic ibex, the apricot flower, and a number of other plants and animals specific to this trans-Himalayan region. The Sky Cyber Café, an internet café on the main bazaar, has photographs of ibex, red fox, snow leopard, and the mountains and lakes that migratory birds inhabit hanging on the walls above

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<sup>4</sup> Shawl, Tahir. Interviewed by Lauren Satterfield. Recorded as notes. Office of the Wildlife Warden - Leh, Ladakh, India. 20 April, 2009.

<sup>5</sup> McCarthy, T. M. and G. Chapron. 2003. Snow Leopard Survival Strategy. ISLT and SLN, Seattle, USA, 26. In the spring of 2009, 50 Indian rupees, also written as INR 50.00, had the approximate value of one U.S. dollar, or USD 1.00. All references to rupees henceforth refer to Indian rupees, or INR.

<sup>6</sup> Takpa, Jigmet. Interviewed by Lauren Satterfield. Recorded as notes. Office of the Conservator of Forests - Ladakh, Ladakh, India. 25 April, 2009.

its computers (Appendix 1.1), courtesy of the Wildlife Protection Division of Kargil district, along with a framed poster on climate change and a number of “Conserve Wildlife Today for a Better Tomorrow” stickers on its door. The walls of the Budshah Inn Restaurant on Fort Road are lined with posters of wildlife and landscape, their titles including “Wild Mammals of Ladakh,” “Ladakh High-Altitude Wetlands,” “Floral Diversity of Ladakh,” and “Birds of Ladakh.” On the road from Leh west toward Likir, the army has also drawn a picture of a black-necked crane in the sand with the words “Conserve Wildlife” crafted below.<sup>7</sup> Earlier on this road, the Department of Wildlife Protection of the Jammu and Kashmir Government (DWP-J&K) has posted a billboard picturing a snow leopard with the words “Ladakh Pride, Save It!” while on the road to Manali this department has also funded a billboard promoting general wildlife conservation. One trekking agency has chosen as its name Snow Leopard Trails. Stickers from this agency can be found around Leh as well as on the windows of houses in semi-remote villages such as Hemis Shukpachen and Ulley. While trekking in Hemis National Park, hikers will see green blocks painted on cliff sides along the trail with the words “Protect Wildlife” painted inside in white (Appendix 1.2). Trekking agencies, NGOs, the army, and the DWP-J&K all seek to portray and promote positive images of native flora and fauna in Ladakh, the illusive snow leopard acting as the movement’s unspoken figurehead.

### **Snow Leopards and Their Prey**

The snow leopard (*unika unika*), known in Ladakhi as *Schan*, stands

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<sup>7</sup> Takpa, Jigmet. Interviewed by Lauren Satterfield. Recorded as notes. Office of the Conservator of Forests - Ladakh, Ladakh, India. 6 May, 2009.

approximately 60 cm high at the shoulder, and its length including tail ranges from 180-210 cm. While a smaller member of the family of large cats, this animal acts as a top predator in Ladakh. Its natural prey can vary widely and includes blue sheep, argali, ibex, urial, marmot, hare, pika, and waterfowl.<sup>8</sup> When targeting domestic wildlife, a single snow leopard will attack goat, sheep, and young horses, cows, dzo, and yak,<sup>9</sup> although these animals have also been known to attack a full-grown horse, cow, dzo, or yak,<sup>10</sup> sometimes hunting in pairs.<sup>11</sup> Preferring to live in rocky outcrops along steep cliffs between 3,000 and 5,000 meters in elevation (Appendix 1.3), the snow leopard's adaptations include the ability to jump six meters across and to leap and climb up steep cliff faces.<sup>12</sup> This agility has allowed the snow leopard to find its way into livestock enclosures, often squeezing through holes only slightly larger than its head and many feet about the ground.<sup>13</sup> While almost all villagers that I talked to in Sham and Rumbak valleys had seen a snow leopard at some time in their lives, two of these individuals having seen a snow leopard less than two weeks prior, trekkers that come to catch a glimpse of these illusive animals rarely succeed in their quest. With only 6,000 to 8,000 snow leopards left in the world,<sup>14</sup> Ladakh and the surrounding areas hold 200-

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<sup>8</sup> Pfister, Otto. *Birds and Mammals of Ladakh*. (New Delhi: Oxford University Press, 2004), 205.

<sup>9</sup> Pfister 2004, 205

<sup>10</sup> Norboo, Tsewang. Interviewed by Lauren Satterfield. Translated by Jigmet Dadul. Recorded as notes. Ulley village, Ladakh, India. 15 April, 2009.

<sup>11</sup> Norbu, Tsewang. Interviewed by Lauren Satterfield. Translated by Tashi Stanzin. Recorded as notes. Likir village, Ladakh, India. 10 April, 2009. The snow leopard typically hunts alone, but has been known to hunt with its mate during the breeding season or with a sibling before establishing a personal territory (Snow Leopard, Monarch of the Mountains 2003).

<sup>12</sup> Pfister 2004, 205

<sup>13</sup> Dadul, Jigmet. Interviewed by Lauren Satterfield. Recorded as notes. Ulley village, Ladakh, India. 14 April, 2009.

<sup>14</sup> McCarthy 2003, 16 More accurate estimates have proven difficult to obtain due to the snow leopard's distribution among twelve countries and throughout terrain difficult to access and survey.

600 of these leopards, 50-75 of which live in Hemis National Park.<sup>15</sup>

### **Threats to the Snow Leopard**

The primary threats to the snow leopard are poaching for pelts, bones, and body parts; a decrease in the population of its natural prey; killing by villagers as either a revenge or retribution measure for livestock lost to the predator, or as a preventative measure for the same; and finally destruction and fragmentation of habitat.<sup>16</sup> In conducting my study, I found that references to recent<sup>17</sup> incidences of poaching in Ladakh were rare, suggesting few problems with poaching in the area. Most conservation efforts targeted prevention of livestock depredation, defined as the killing of domestic livestock by a wild predator. One study put out by the Snow Leopard Conservancy – India Trust (SLC-IT), an international NGO started by Rodney Jackson of the United States, cited structural deficiencies of cattle pens and decreased natural prey populations as the primary reasons for this depredation conflict.<sup>18</sup> Poorly constructed cattle pens include those with windows or other openings large enough for snow leopards to fit through<sup>19</sup> and those with doors or roofs weak enough to be broken through.<sup>20</sup> Such structures allow a snow leopard or other predator easy access to a group of cornered livestock,

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<sup>15</sup> Jackson, Rodney, comp, *Snow Leopard Status, Distribution and Protected Areas Coverage: A Report*. The Snow Leopard Conservancy. 6 May 2002. <http://www.snowleopardnetwork.org/bibliography/jrsls02.pdf> (accessed May 9, 2009)

<sup>16</sup> Snow Leopard Trust. “Threats.” Snow Leopard Trust. <http://www.snowleopard.org/catfacts/classroom/catfacts/threats> (accessed May 9, 2009)

<sup>17</sup> Within the last ten years.

<sup>18</sup> Jackson, Rodney, Rinchen Wangchuk and Darla Hillard. “Grassroots Measures to Protect the Endangered Snow Leopard from Herder Retribution: Lessons Learned from Predator-Proofing Corrals in Ladakh.” (Presented at the Snow Leopard Survival Summit, 2002), 1.

<sup>19</sup> According to a draft copy of an SLC-IT education book, safe windows are no larger than four inches by four inches.

<sup>20</sup> Stanzin, Tashi. Interviewed by Lauren Satterfield. Recorded as notes. Sham valley, Ladakh, India. 12 April, 2009.

providing opportunity for depredation and thus increasing the risk for retribution killings by villagers.

### *Livestock Depredation*

In looking at statistical documentation of detrimental interactions between livestock and snow leopards or other predators, one sees that large-scale conflicts certainly exist in Ladakh. General studies across the snow leopard's range show that in depredation "hotspots," or areas of high conflict due to the mutual existence of domestic livestock and prime predator habitat, annual livestock losses resulting from snow leopard depredation can meet or exceed 10-15%.<sup>21</sup> Owing to an abundance of prime snow leopard habitat in Ladakh, many "hotspots" have been identified in this region, particularly in Hemis National Park and its surrounding areas.<sup>22</sup>

Depredation attacks typically manifest in one of two ways. Either a lone domestic animal will be taken from the edge of a herd grazing at pasture (Appendix 1.4) or a snow leopard will enter the cattle pen of a household through some opening and attack the cornered livestock inside (Appendix 1.5, Appendix 1.6). Attacks of the second variety often result in "surplus killing," or the killing of 20-50 animals at once, usually goats or sheep. In some instances, a single snow leopard has been reported to kill over 100 animals at one time.<sup>23</sup> A predator instinctively attacks animals in distress. When in such close quarters with domestic livestock, a snow leopard may repeatedly attack

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<sup>21</sup> Jackson, Rodney and Rinchen Wangchuk. "Snow Leopard Conservation and People-Wildlife Conflict Resolution: Grassroots Measures to Protect the Endangered Snow Leopard from Herder Retribution." (*Endangered Species UPDATE* 18.4 (2001): 138-141): 139.

<sup>22</sup> Jackson and Wangchuk 2001, 138

<sup>23</sup> Jackson and Wangchuk 2001, 138

the domestic animals until most or all have been killed. In these cases, animals sometimes die from the horns and hoofs of other livestock, frantic to escape.<sup>24</sup> Furthermore, the opening that allowed the snow leopard its initial entry into the enclosure is often too small for it to remove prey from the pen, making it necessary for the snow leopard to consume the livestock within and thus forcing continued confrontations between livestock and snow leopard. It has also been found that the position of the entry point sometimes prevents exit of the snow leopard, forming a trap. This is especially true when the predator enters through the roof of the enclosure where it easily drops several feet to the floor of the pen but would have to jump vertically several feet through the same small overhead opening to escape. Thus, the snow leopard stays inside the cattle pen, killing most or all of the trapped animals, often without consuming them.<sup>25</sup> Such mass killings, or even the killing of more than one animal at a time, rarely occur in nature. They are not part of the snow leopard's natural hunting patterns. Rather, they result from the poor livestock husbandry practices of villagers. Unfortunately, many of these villagers have neither the knowledge nor the materials to improve their practices.<sup>26</sup>

### *Retribution Killing*

As a reaction to these instances of “surplus killings,” or even as a preventive measure, villagers have at times sought out and killed snow leopards and their cubs. These “retribution killings” have occurred in a variety of ways. In the case of a snow leopard trapped in a cattle pen, villagers have

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<sup>24</sup> Dadul, Jigmet. Interviewed by Lauren Satterfield. Recorded as notes. Office of the Snow Leopard Conservancy – India Trust, Ladakh, India. 9 April, 2009.

<sup>25</sup> Shaul, Tahir. Interviewed by Lauren Satterfield. Recorded as notes. Office of the Wildlife Warden - Leh, Ladakh, India. 21 April, 2009.

<sup>26</sup> Takpa 25 April 2009

stoned the animal to death or thrown it poisoned meat to eat. Villagers have also been known to form traps, or deep pits at the bottom of which meat has been deposited to attract the animal.<sup>27</sup> Again, once trapped, the animal is killed by stoning if poisoned meat was not used.<sup>28</sup> In other cases, villagers have watched the snow leopard closely enough to find the location of its den. In the absence of the fully grown predator, villagers have come to the den and killed the cubs inside. A study referenced in a draft version of an SLC-IT educational booklet<sup>29</sup> entitled “Diversity in the Cold Desert: An Environmental Handbook for Educators in Ladakh,” states that between 1996 and 2002, sixteen snow leopards were killed in Zaskar alone, with eight of these killings occurring in just one village.<sup>30</sup>

### *The Human Perspective*

The following story of an individual depredation incident and the financial losses incurred from it display the understandable anger that results from such misfortunes. Pointing to a hill behind his house, Tsewang Norbu of Likir said that a snow leopard had killed one of his four sheep on that very spot in October of 2008. I asked if he could get government compensation for the animal, and he said that it was possible. However, he said that he did not apply for this money. In order to be eligible, he would have to travel to Leh and file for reimbursement. If successful, he would receive at most 300-400

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<sup>27</sup> According to an SLC-IT educational book, one can still see these trap pits at the entrance to Markha village, though are now believed to be unused.

<sup>28</sup> Ganhar, J.N. *The Wildlife of Ladakh* (Kashmir: Haramukh Publications, 1976), 41.

<sup>29</sup> This book was part of the “Snow Leopard Conservation Education Programme,” a collaborative project between SLC-IT and Kalpavriksh, and NGO that works on educational materials.

<sup>30</sup> No publication year could be found on this book as it was a draft copy, but this information was gained on April 24, 2009.

rupees. The cost of travel to and lodging in Leh would meet or exceed this compensation amount. He said that goats or sheep such as the one he lost range from 1,000 to 3,000 rupees in value, a price significantly more than the reimbursement rate.<sup>31</sup> While the DWP-J&K has now changed its reimbursement policy, discussed later, knowledge of the change clearly has not made its way to this villager. According to Jigmet Dadul of the Snow Leopard Conservancy – India Trust (SLC-IT), under the old system, a farmer may have received compensation of 2,000-3,000 rupees for a dzo or yak valued at 20,000 to 25,000 rupees or more.<sup>32</sup> Tsewang Norbu expressed that because the Indian government has banned the killing of the snow leopard, they should pay in full when an animal is killed by the predator.<sup>33</sup> Such an opinion displays a simultaneous respect for restrictions imposed by conservation laws and a desire for an improved compensation system.<sup>34</sup>

While some villagers find issue with the reimbursement systems in place, others resent what they view as greedy and wasteful eating habits of snow leopards. A single snow leopard cannot eat the meat of the dozens of animals lost to incidences of surplus killings. Villagers believe that the snow leopard desires a different part of the kill. Tashi Stanzin, a man originally from Domkhar, explained the process of a snow leopard attacking livestock in an enclosure. He said that the predator kills the largest animal first, and then turns on the others one by one. He explained that the snow leopard then drinks the

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<sup>31</sup> Norbu 10 April 2009

<sup>32</sup> Dadul 9 April 2009

<sup>33</sup> Norbu, Tsewang. Interviewed by Lauren Satterfield. Translated by Tashi Stanzin. Recorded as notes. Likir village, Ladakh, India. 11 April, 2009.

<sup>34</sup> At the time of this interview, the DWP-J&K had already begun its homestay package compensation system, discussed later in this paper. Such a comment displays the knowledge of this new system has not made its way to all or even most people in villages in Leh District.



blood from the throats of all the animals, but does not eat the meat right away.<sup>35</sup> Tahir Shawl, Wildlife Warden of Leh District of the DWP-J&K (Appendix 1.7) further noted that in many of these cases, none of the meat is ever eaten.<sup>36</sup> In two or three informal conversations, villagers explained that after such a mass killing, the snow leopard can even become drunk off the large amounts of blood consumed. This blood-drunk state, they said, allowed the snow leopard to be caught or even killed in times past.

### *Shepherd's Tales – The Intelligent Predator*

Several stories show that villagers view this predator as highly intelligent, and thus highly dangerous. In speaking with Jigmet Dadul of the SLC-IT, I learned of a number of shepherds' tales that display the cunning nature these shepherds associate with snow leopards. First, these men say that during their trips to summer pasture, curious things occur as they guide their herds. Sometimes they will whistle, and in the distance they will hear the snow leopard whistling back. Other times they crack their whips to steer the herd this way or that. Again, they hear the snow leopard mimic this sound, cracking his long tail as if it were made of leather. The tales continue on into the night, when the men sleep. At this time, the snow leopard sees the shepherds all slumbering beneath a large blanket. He creeps up to the men and tugs on the blanket. If they wake, he runs off. If their sleep has become so deep that they do not wake, the snow leopard enters the enclosure to prey on the livestock.<sup>37</sup>

The most detailed and sly story, however, takes place during daytime.

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<sup>35</sup> Stanzin, Tashi. Interviewed by Lauren Satterfield. Recorded as notes. Sham valley, Ladakh, India. 11 April, 2009.

<sup>36</sup> Shawl 21 April 2009

<sup>37</sup> Dadul 14 April 2009

Traditionally, herds graze toward the base of mountains and in valleys, while the snow leopard prefers to keep watch from the rocky cliffs above. The shepherds say that sometimes, when the snow leopard sees such a herd below, he does a very clever thing. He throws a small stone down the mountain toward the herd. If the herd does not spook, he throws another rock. If again the herd does not move, he throws more and more rocks and stones so that the herd thinks, “Oh, these rocks are just falling down the mountain.” Once he has desensitized the animals, the snow leopard gathers a large bundle of grass in his arms, curls up in a ball, and begins to roll down the mountain. Upon seeing this, the herd thinks, “Oh, this is just some grass coming to us from up the mountain.” The snow leopard rolls and rolls until he reaches the bottom, at which point he uncoils and attacks!<sup>38</sup> Stories such as these display how fear of this animal’s intelligence could lead to a desire to eradicate it.

### *The Ecological Connection*

While some of the beliefs expressed here may exceed the realities of the snow leopard’s resourcefulness, the actual financial losses and livestock fatalities brought about by successful hunting attempts of the snow leopard have certainly led to detrimental retribution killings like those found in Zanskar. From an ecological perspective, these retribution killings cause as much damage to the population of the snow leopard as they do to the well-being of the villagers that have participated in them. As the top predator of its ecosystem, the status of the snow leopard affects the balance of wildlife populations all the way down the food chain. As snow leopard populations

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<sup>38</sup> Dadul 14 April 2009

decrease, the ungulate species it preys upon will over breed, creating increased competition for grazing lands. For the rural villager, such ungulate overpopulation reduces the grasses and shrubs available for domestic livestock grazing. With less foliage to be had, the amount of livestock that these areas can support also reduces. Wild and domestic animals that do graze on these lands will dig for roots in the absence of above-ground grasses, destroying what little vegetation still exists. Additionally, both wild and domestic animals will turn to crops as a source of food, further degrading the potential income for the villager.<sup>39</sup>

The conditions that drive a snow leopard to prey on domestic livestock result from ecological imbalances as well. Long-term effects of legal and illegal hunting of prey species, competition with an increasing domestic livestock population for grazing land, and, in some areas, deaths of wild prey due to diseases transmitted from livestock have reduced natural prey populations in many snow leopard regions,<sup>40</sup> including those found in Ladakh.<sup>41</sup> In the absence of sufficient numbers of its natural prey, snow leopards resort to domestic livestock predation,<sup>42</sup> again creating human-wildlife conflicts. At times it can occur simultaneously that grass levels prove insufficient to feed ungulate populations, and that ungulate populations prove insufficient to support snow leopard populations. Increasing numbers of livestock can cause such a situation when a domestic herd overgrazes the vegetation of a given area.<sup>43</sup>

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<sup>39</sup> Angmo, Rinchen. Interviewed by Lauren Satterfield. Recorded as notes. Office of the Snow Leopard Conservancy – India Trust, Ladakh, India. 24 April, 2009.

<sup>40</sup> McCarthy 2003, v

<sup>41</sup> Shawl 20 April 2009

<sup>42</sup> McCarthy 2003, 30

<sup>43</sup> Angmo 24 April 2009

A document titled, “Snow Leopard Survival Strategy,” published in 2003 as a joint collaboration between the International Snow Leopard Trust (ISLT) and the Snow Leopard Network (SLN), lists “Lack of Awareness Among Local People” as one of the main threats to snow leopard survival. In the document, it states that, “[from] a broader perspective, conservation is a poorly understood concept for many people who live in snow leopard habitat. The reasons for conserving a large predator which impacts their lives by taking livestock has not been adequately conveyed to most local people.”<sup>44</sup> Without understanding the snow leopard’s role in the ecosystem and how the disappearance of this predator would affect them, villagers carry on practices that either ignore conflicts or contribute to them.

## **ADDRESSING CONFLICTS**

In response to such destructive interactions, interested NGOs along with the DWP-J&K began projects to help villagers prevent instances of depredation and financially recover if such attacks were to occur. These projects included plans to promote more positive local perceptions toward wildlife and wildlife conservation, a goal that, if achieved, could help sustain healthy wildlife populations in the future. These programs can be categorized into four different areas: livestock reimbursement, education, conflict control programs, and homestay programs that have led to local association formation.

### **Livestock Reimbursement**

The DWP-J&K took preliminary action to address these human-

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<sup>44</sup> McCarthy 2003, 32

wildlife conflicts by initiating a livestock reimbursement program. This program began around 1997. However, within two years the program was drawing 60% of the department's annual budget, putting a great deal of strain on the department, despite the fact that reimbursement rates accounted for less than a fourth of an animal's actual value.<sup>45</sup> Furthermore, as in the case of Tsewang Norbu of Likir, the personal energy and financial costs associated with applying for this money prevented some villagers from even submitting an application. The DWP-J&K had the obligation to investigate claims to ensure that the livestock on which a claim was filed had existed, had belonged to the applicant, and had been killed by a wild animal, but such a process took long periods of time to complete, in some cases lasting up to two years.<sup>46</sup> According to Jigmet Takpa, Conservator of Forests – Ladakh (Appendix 1.8), the DWP-J&K ceased this reimbursement program due to the numerous problems inherent in the system, and began to look for other options.<sup>47</sup>

### **Education in Schools**

In 1996 the Jammu and Kashmir Board of School Education (J&K BOSE), in collaboration with the Ladakh Autonomous Hill Development Council (LAHDC)<sup>48</sup> and Students' Educational and Cultural Movement of Ladakh (SECMOL), put out its first primer book as part of a district-wide overhaul of its education systems and materials.<sup>49</sup> This overhaul aimed to

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<sup>45</sup> Jackson and Wangchuk 2002, 2

<sup>46</sup> Jackson and Wangchuk 2002, 2

<sup>47</sup> Takpa 25 April 2009

<sup>48</sup> LAHDC is the general government for Ladakh

<sup>49</sup> \_\_\_\_\_. *Environmental Studies Part I for Class IV: A textbook of Science for children of Ladakh* (Leh: Jammu and Kashmir Board of School Education in collaboration with Ladakh Autonomous Hill Development Council, Leh and SECMOL for Operation New Hope, 2003), 7.

educate students on locally-based knowledge before introducing material about which they had no prior experience, thus allowing them some foundation of understanding. This meant, for example, teaching about glaciers and yaks before oceans and elephants.<sup>50</sup> For the subject of Environmental Studies, known shorthand as E.V.S., the major change involved combining the topics of Social Studies and Science. The “NOTE TO TEACHERS” in the Environmental Studies Workbook for Class III states that such a fusion occurred, “because we [J&K BOSE and associated authors] feel that the two subject areas are connected, and should not be taught separately.”<sup>51</sup> Such an attitude echoes the philosophy that issues of conservation and the natural environment are inextricably connected to the people who share this environment, and thus that one must understand the intricacies of and interconnections between both in order to study conflicts or harmonies between them.

An investigation of these school texts shows that the books, written in English, teach Ladakhi wildlife in third and fourth class, with fifth class material extending to wildlife found in areas of J&K other than Ladakh.<sup>52</sup> The third class book makes abundant use of pictures and simple sentences, while the amount and complexity of text increases with class level. The material specifically related to animals in the Environmental Studies Workbook for Class III, most recently printed in 2003, teaches basic features of animals.

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<sup>50</sup> Environmental Studies Part I for Class IV 2003, 7

<sup>51</sup> \_\_\_\_\_. *Environmental Studies (Science and Social Studies), Workbook for Class III* (Leh: Jammu and Kashmir Board of School Education in collaboration with Ladakh Autonomous Hill Development Council, Leh and SECMOL for Operation New Hope, 2003), ii.

<sup>52</sup> In the Indian school system, primary school levels are called “classes,” with the majority of students advancing to the next numerical class each year. Most students begin first class, or Class I, at age six, and thus children in third, fourth, and fifth class should be approximately eight, nine, and ten years old, respectively.

These include types of “outer covering” such as hair, scales, feathers, or shell; ways animals “move about” such as running, jumping, flying, or swimming; and what food-need categories animals fall into, such as “plant eaters,” “animal eaters,” and “plant and animal eaters.”<sup>53</sup> The book pictures snow leopards and its prey species throughout. One page even depicts a man attempting to sell a snow leopard pelt with the caption, “Here is the skin and outer covering of a snow leopard. The man wants to sell it. Snow leopards and other animals in Ladakh are special. It is wrong to hurt or kill them (Appendix 1.9).”<sup>54</sup> The textbook Environmental Studies Part I for Class IV, also printed in 2003, devotes Chapter 5 to “Wild Plants of Ladakh,” Chapter 6 to “Wild Animals of Ladakh,” and Chapter 7 to “The Food Chain.” This book goes into more scientific depth than the Class III book regarding specific species, among these snow leopard, otter, Himalayan marmot, urial, Tibetan argali, blue sheep, Himalayan ibex, Tibetan antelope, black-necked crane, golden eagle, and a number of lesser birds, reptiles, and insects (Appendix 1.10).<sup>55</sup> This book displays an interest in presenting these plants and animals as a rare, unique, and integral part of Ladakh’s environment.

In 2006, the SLC-IT began its own wildlife education series, the Snow Leopard Conservation Education Programmes, produced with the assistance of Sujatha Padmanabhan and an educational organization called Kalpavriksh. The SLC-IT runs this program in both public and private schools. Over the course of six to eight full-day sessions, the program teaches students in fourth through eighth class about biodiversity, mammals of Ladakh, birds of Ladakh, reptiles and insects of Ladakh, plants of Ladakh, how this flora and fauna has

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<sup>53</sup> Environmental Studies Workbook for Class III 2003, 39-44

<sup>54</sup> Environmental Studies Workbook for Class III 2003, 88

<sup>55</sup> Environmental Studies Part I for Class IV 2003, 38-65

adapted to this region, the web of life, the food chain, flora and fauna outside of Ladakh, characteristics of and threats to the snow leopard, what constitutes a predator-proof corral pen, and how increased livestock numbers create grazing pressure. They plan to add educational sections next year that will discuss effects of the army's presence on the environment, issues surrounding domestic animals such as dogs and cats, and the intricacies of sustainable wildlife tourism. Educational tools used in the program include lectures in Ladakhi, quizzes in simple English, wildlife games (Appendix 1.11), art projects, color display posters (Appendix 1.12), drawings on the board, informal discussion, and films. The program also allows students to plan a town improvement project for the year after the program. Past projects have included trash clean-up and recycling (Appendix 1.13) or the repair and whitewashing of stupas. The program also includes a trip in the summer to a region of Ladakh ecologically different than the students' home region. Finally at the end of the series, instructors encourage students to relate information acquired to friends and family.<sup>56</sup>

After looking at the SLC-IT educational materials and attending a session of their program, I observed that many of their games, projects, worksheets, and systems of presenting material represented a more in-depth version of those in the J&K BOSE school texts, particularly activities in the Environmental Studies Part I for Class IV book. Further investigation showed that this Class IV text acknowledged Rinchen Wangchuk of SLC-IT for "materials, comments, and/or advice," and Sujatha Padmanabhan for her help

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<sup>56</sup> Angmo 24 April 2009



in writing chapters of the text.<sup>57</sup>

According to Ashwini Upadhyay of the Wildlife Institute of India, many of the ideas and pictures used in both the J&K BOSE books and SLC-IT programs originally came from two educational readers, one published in 1999 and the other in 2003, and four educational posters all developed by the Centre for Environmental Education (CEE).<sup>58</sup> The CEE is a “national institution established in 1984 and supported by the Ministry of Environment and Forests, Government of India”<sup>59</sup> whose “primary objective is to improve public awareness and understanding of environmental issues with a view to promote the conservation and wise use of nature and natural resources.”<sup>60</sup> The four posters and the 2003 reader *Snow Leopard, Monarch of the Mountains: Information, Activities, and Ideas for Educators* came as part of a larger series entitled “Hardy Mountains, Fragile Environments,” a series developed out of the collaboration of five different groups (Appendix 1.14). These groups include the Wildlife Institute of India (WII), the DWP-J&K, the International Snow Leopard Trust (ISLT), the Snow Leopard Conservancy (SLC), and the CEE. Ashwini Upadhyay further noted that this conglomeration represents a research institution, the local government, an international NGO, an international NGO with a local branch, and an educational institution, respectively. Thus, he said, this series follows ecologist Alan Rogers’ three-

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<sup>57</sup> Environmental Studies Part I for Class IV 2003, 8

<sup>58</sup> Upadhyay, Ashwini. Interviewed by Lauren Satterfield. Recorded as notes. Leh, Ladakh, India. 26 April, 2009.

<sup>59</sup> Raghunathan, Meena and Mamata Pandya, ed. *The Green Reader: An Introduction to Environmental Concerns and Issues* (Centre for Environmental Education. A Publication Supported by Ministry of Human Resource Development, Government of India, 1999), ii.

<sup>60</sup> \_\_\_\_\_. *Snow Leopard, Monarch of the Mountains: Information, Activities, and Ideas for Educators* (Developed as part of “Hardy Mountain, Fragile Environments”, a project of Centre for Environment Education, India, in collaboration with Wildlife Institute of India; Department of Wildlife Protection, J&K Government, India; International Snow Leopard Trust and Snow Leopard Conservancy, USA, 2003), 1.

part formula for the success of any program, namely political will, administrative support, and involvement of the research community.<sup>61</sup> Therefore, materials currently used in government schools and the SLC-IT programs derive from the original work of these five diverse organizations and so provide a solid foundation for wildlife education in Ladakhi schools.

The J&K BOSE books and the Snow Leopard Conservation Education Programme in no way represent the entirety of educational efforts currently put forth in Ladakh, but rather the basis of wildlife education for pre-adolescent school children. For example, the DWP-J&K recently began a two-to-three day hands-on program to educate college students on the biodiversity of Hemis National Park. They have also run programs with the army and separately for tour operators to spread knowledge about wildlife and conservation etiquette, and a Tranquilization and Rescue Training Workshop for DWP-J&K staff regarding proper tranquilization and capture techniques.<sup>62</sup> The ISLT in association with The Mountain Institute (TMI) and the Ladakh Ecological Development Group (LEDeG) ran a Livestock Predation Control Workshop in Markha village to address the high rates of depredation found in the area.<sup>63</sup> Thus, while most of these educational programs began within the past two to five years, they have provided wildlife conservation education to a diverse group of people living and working in Ladakh.

### **Homestay Programs and Local Association Formation**

Homestays in Ladakh are arguably as old as Ladakhi culture itself. For

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<sup>61</sup> Upadhyay 26 April 2009

<sup>62</sup> Shawl, Tahir. Interviewed by Lauren Satterfield. Recorded as notes. Office of the Wildlife Warden - Leh, Ladakh, India. 25 April, 2009.

<sup>63</sup> Jackson 1999, 22

centuries, traditional Ladakhi culture involved trading. Men from each village would leave for periods of time during the winter to trade goods, and during their travels they would take food and rest each night in the homes of various villagers along the way. Thus, when Ladakh first opened for tourism in 1974 and few guest houses or hotels existed to accommodate tourists, Ladakhis took these foreign travelers into their homes.<sup>64</sup> According to Jigmet Takpa, Conservator of Forests - Ladakh, Wildlife of the DWP-J&K, the initial motivation for this hospitality was not monetary, but rather a result of the cultural disposition of the Ladakhi people to house a traveler. Thus, in his view, it is due to the pre-existent culture of the people of Ladakh that formalized homestays work in this region.<sup>65</sup>

#### *The Homestay Experience for the Visitor*

When arriving in a homestay, a guest will experience a general system of hosting. First, the guest receives tea and possibly a snack of crackers, biscuits, bread, and sometimes roasted barley called *yos* (Appendix 1.15). Then a member of the family, usually the house mother, escorts the guest to the room. Inside, the guest will find a mattress and pillow placed on the floor, with a stack of blankets in one corner and possibly some woolen handicraft items on display. The guest room almost always has at least two walls of windows, allowing even the most passive of visitors to enjoy the nature and wildlife of the area (Appendix 1.16, Appendix 1.17). Sometimes the host will ask what sort of food the guest would like for their meals, and in other cases the visitor eats whatever the housemother has decided to cook that day.

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<sup>64</sup> Takpa 25 April 2009

<sup>65</sup> Takpa 25 April 2009

Typical Ladakhi meals include rice with dal and vegetables, a small pasta and vegetable dish called *skyu*, a large pasta and vegetable dish called *chhu tagi*, or vegetable-filled dumplings called *mok moks* or *mo mos*. After dinner, the host serves a final cup of tea before the guest goes to bed. In the morning, the guest again receives tea and a breakfast that can vary from *chapati* bread with butter and jam to rice pudding to *chapati* with dal and vegetables. If leaving that day, the visitor receives a packed lunch of *chapati* and other snack foods.

In addition to providing food and housing to a traveler, this experience immerses a guest in Ladakhi culture. By simply looking out the window in the evening and morning, an individual can observe animals coming from and going to pasture, cows and dzos getting milked, donkeys and horses carrying their daily loads, and wildlife traveling across the landscape. By staying in the kitchen during the preparation of meals, one can learn the basics of cooking Ladakhi food. During the right time of year, an interested party can watch or participate in the watering and plowing of fields (Appendix 1.18) or the harvesting of the same, or the spinning of yarn and weaving of clothes. Even going to the restroom brings the unique experience of using a Ladakhi composting toilet. Through this experience, foreigners learn about the finer points of Ladakhi culture and participate in cultural exchange while inadvertently benefiting local people and wildlife alike.

#### *Homestay Origins and Benefits for the Local Community*

The idea of establishing formalized homestays in Ladakh began in 2001 as a project developed by the Snow Leopard Conservancy – India Trust

(SLC-IT)<sup>66</sup> with financial support from the United Nations Educational, Science, and Cultural Organization (UNESCO). The program, now named Himalayan Homestays, aimed to foster more positive perceptions of sharing territory with snow leopards and other wildlife in local communities around Ladakh, while simultaneously bringing benefits to these communities. To do this, the SLC-IT organized a system of host families, or homestays, which would provide trekkers with three meals and indoor accommodations in exchange for a fee of 350 rupees per person per night and 600 rupees per couple per night.<sup>67</sup> Previous to these homestays, trekkers had to carry food, tents, and cooking equipment with them from village to village, thus providing little or no remuneration to the villagers. Furthermore, trekking groups have been known to wash their bodies and clothes in streams, leave refuse in the form of plastic bottles and bags throughout the trails and campsites, and fail to properly manage excrement disposal in the campsite areas.<sup>68</sup> The unusual mountain desert of Ladakh and the rare plants and animals found here draw the trekkers to these trails. Thus the project aimed to redirect some of the tourism money away from tourist agencies and into the hands of villagers, while simultaneously reducing the impact that the presence of trekkers has on the environment that attracts them.

The first SLC-IT homestay began in Rumbak village in 2001 due to the abundance of snow leopards in the area, an abundance that earned the valley the name “Snow Leopard Capitol of the World.”<sup>69</sup> According to Padma Dolma of Rumbak, the program received little publicity for the first few years. After

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<sup>66</sup> Batra 9 April 2009

<sup>67</sup> Morup, Tsewang, Interviewed by Lauren Satterfield. Recorded as notes. Office of Snow Leopard Trails, Ladakh, India. 23 April, 2009.

<sup>68</sup> Dadul 9 April 2009

<sup>69</sup> Information from the Himalayan Homestays book found at SLC-IT homestays

Rinchen Wangchuk, president of the SLC-IT, began posting advertisements around Leh, tourists started to come in increasingly large numbers.<sup>70</sup> In 2003, the program expanded to Sham valley and in 2005 homestays began in Zanskar.<sup>71</sup> Families involved in the program received homestay materials and training. Materials included mattresses, bed sheets, pillows, pillow cases, curtains, kitchen towels, dusters, wash buckets, soap cases, and a few disposable items like candles. The training program educated the house mothers, who would be doing the bulk of the cooking and hosting, on standards of cleanliness for the kitchen, guest room, and toilet area.<sup>72</sup> The cooking training focused on requirements of foreign guests, such as a reduced level of spiciness in food.<sup>73</sup> One woman from Ulley village, Tsering Dolma, praised this training, noting that she had received no complaints from guests at her house.<sup>74</sup>

The SLC-IT agreed to provide these services with the stipulation that a minimum of 10% of all money gained through the homestay program go into a village conservation fund. This fund could be used at the discretion of the village to benefit all residents.<sup>75</sup> According to a Himalayan Homestay information book found in the guest room of SLC-IT homestays, the villagers of Urutse used this money to clear their village of garbage and whitewash their stupas. Those in Sku/Kaya focused on garbage clean-up and predator-proofing their livestock pens. In Rumbak, this money has been used to clean up garbage

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<sup>70</sup> Padma Dolma 5/1/09

<sup>71</sup> Information from the Himalayan Homestays book found at SLC-IT homestays

<sup>72</sup> Dadul, Jigmet. Interviewed by Lauren Satterfield. Recorded as notes. Ulley village, Ladakh, India. 15 April, 2009.

<sup>73</sup> Lamo, Tsewang. Interviewed by Lauren Satterfield. Translated by Morup Tashi. Recorded as notes. Rumbak village, Ladakh, India. 1 May, 2009.

<sup>74</sup> Dolma, Tsering. Interviewed by Lauren Satterfield. Translated by Jigmet Dadul. Recorded as notes. Ulley village, Ladakh, India. 15 April, 2009.

<sup>75</sup> Dadul 9 April 2009

and plant Willow trees (Appendix 1.19).<sup>76</sup>

This additional income has had added benefits for women. According to the Himalayan Homestays information book, women originally expressed a preference for homestays in their villages because, “[they] said they could cater to visitors while continuing their daily agricultural practices.” Because it is the women who provide the bulk of these guest services and who generally run the household, they also have the power to determine how to use this money. As a result, women’s alliances have formed in many villages. In Rumbak, the women’s alliance, headed by Padma Dolma, decided to set contributions to the conservation fund at 20% of earnings, determined how to use this money, and started producing handicrafts for sale to foreigners, where 10% of proceeds go into the conservation fund.<sup>77</sup> These women also run parachute cafes, or cafes run out of large tents at the entrances of villages (Appendix 1.20) that sell these handicrafts along with local food, garnering more income for the village and creating space for interactions with travelers.

In 2006 the DWP-J&K began its own homestay program in Rumbak village, overlapping with SLC-IT homestays and bringing the program to households not previously involved. The department provided all nine families in Rumbak with homestay materials and training. Here, homestay materials included mattresses, bed sheets, pillows, pillow covers, quilts, quilt covers, doormats, high quality towels, water filters, and signs identifying the house name of the homestay (Appendix 1.21). Bedding materials allowed families to offer more comfortable accommodations than they would have otherwise been able to provide, as most homes only have enough materials for the residents of

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<sup>76</sup> Information from the Himalayan Homestays book found at SLC-IT homestays

<sup>77</sup> Dolma, Padma. . Interviewed by Lauren Satterfield. Translated by Morup Tashi. Recorded as notes. Rumbak village, Ladakh, India. 1 May, 2009.

the house. Doormats decreased dirt tracked into rooms, high-quality towels were provided so that families would have nice materials to offer guests at the washbasin and to use for wiping dishes in the kitchen, and water filters gave families a way to easily provide safe water for trekkers, thus eliminating the need for these tourists to buy or carry environmentally destructive bottled water. In the homestay training, families were instructed to keep the kitchen and guest rooms neat and free of dust.<sup>78</sup> Cooks from Leh were brought to the villages to provide families improved recipes for local foods such as *skyu* and *chhu tagi*, as well as to teach them how to make chowmein, *samosas*, and pastries in the event that a guest were to request such foods.<sup>79</sup> Trainees also learned how to properly pack lunches for trekkers to bring on the walk to the next village.

In addition to providing homestay training and materials, the DWP-J&K took approximately twenty-five young, educated men and women from the greater area of Hemis National Park and trained them as nature guides. The program introduced guides to basic wildlife conservation concepts, educated them about Ladakh's protected areas, overviewed the flora and fauna of Hemis National Park, provided education about group safety guidelines, and gave basic instruction on how to manage a group of tourists. After receiving these preliminary instructions, the program moved from Leh to Hemis National Park where trainees received practical training about plants and animals in the region. The program also included a short English language course and a basic computer skills course to allow guides to create and maintain connections with tourists. At the end of the course, each participant received a certificate of

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<sup>78</sup> Shawl 20 April 2009

<sup>79</sup> Shawl 20 April 2009



completion (Appendix 1.22).<sup>80</sup>

By training local youths to be guides, the DWP-J&K benefited the Hemis National Park community in two ways. First, this group from the park area received a detailed education on the flora and fauna of their community, thus forming a connection between these individuals and the environment around them. Through such a connection, an opportunity is created to garner local pride for the park and to generate a desire to protect the land and its wildlife. Second, the program created self-employment opportunities for these youths. According to Dorje Angchuk, president of All Ladakh Unemployed Youth Association (ALUYA), Ladakh suffers from high unemployment rates and youth populations have the hardest time finding work. Many come to Leh to go to school or to look for jobs, and as a result often do not return to live in their villages. Thus, competition for jobs in Leh has increased, exacerbating the problem.<sup>81</sup> According to Tahir Shawl, almost all of these trainees were immediately employed by tour operators in Leh and now make 700-800 rupees per day during the tourist season.<sup>82</sup> Thus, successful graduates of this 2007 DWP-J&K program have either remained in their villages or return for several months each year, and the tours they give generate money for themselves and their communities while promoting the preservation of the wildlife of Hemis National Park.

At the suggestion of Jigmet Takpa and Sir Robert Fflokkes, the latter a man from the UK who had previously worked in the Hemis National Park area with the Leh Nutrition Project (LNP), these nature guide program graduates

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<sup>80</sup> Shawl 20 April 2009

<sup>81</sup> Angchuk, Dorje. Interviewed by Lauren Satterfield. Recorded as notes. Leh, Ladakh, India. 29 April, 2009.

<sup>82</sup> Shawl 20 April 2009

organized to form the Youth Association for the Conservation and Development of Hemis National Park (YAFCAD HNP)<sup>83</sup>. Twenty of YAFCAD HNP's more than forty members hold certificates from the DWP-J&K's initial training course, and the remaining members participate in homestay programs, solar power initiatives, waste management projects, and/or culture and heritage programs such as repairing monasteries or whitewashing stupas. Two to three villagers from every village in Hemis National Park are members of the YAFCAD HNP, and thus the entire park community has become involved with the protected area in which they live. Now, the YAFCAD HNP communicates the needs of villagers in the park area to the DWP-J&K through requests and project proposals, and works with this government department in implementing such projects. Most recently, the YAFCAD HNP submitted a proposal to run another wildlife guide education program for youth in the park. This program would give original guides a refresher course and introduce newly trained guides to the area.<sup>84</sup> Such a request implies satisfaction with the DWP-J&K's original program idea and a desire to continue such pro-wildlife projects.

According to Jigmet Takpa, the DWP-J&K did not initially desire to join the movement to promote homestays, as at the time it fell outside of the department's scope of interest. However, due to the fact that the NGOs involved had limited funds and could not provide materials and training to all the houses in a particular village, the DWP-J&K began their program in Hemis National Park in the 2007/2008 fiscal year. This program began as a

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<sup>83</sup> Stanzin, Dorjy. Interviewed by Lauren Satterfield. Recorded as notes. Office of the Youth Association for the Conservation and Development of Hemis National Park, Ladakh, India. 23 April, 2009.

<sup>84</sup> Stanzin 23 April 2009

way to allow equal opportunities to families and to bring ecotourism income to these areas.<sup>85</sup> In the 2008/2009 fiscal year, the “homestay package” formally replaced cash livestock reimbursement as government compensation for livestock lost to wild predators in areas of “high tourism potential.”<sup>86</sup> Additionally, it is Jigmet Takpa’s desire to copy the youth association model developed in Hemis National Park in other areas of Ladakh such as Changtang. In this plan, the people of a district will come together and form their own registered organization. Then, the DWP-J&K will work with leaders of the organization to provide financial and technical assistance with programs proposed by this local group. In the case of livestock reimbursement, this means that an organization would request a certain type of compensation from the DWP-J&K, who would then review the application and make a decision. In the case of homestays, such compensation would extend beyond the affected family to all those in the community. According to Jigmet Takpa, it is the goal of the DWP-J&K to “give equal opportunities to all those interested and capable,” as giving benefits to only a few houses “creates dynamics” and brings “unequal money, which creates divides.”<sup>87</sup> This model requires that the DWP-J&K take a broader stance on conservation through local interaction and that a community take responsibility for and participate in its own problem identification and problem solving. Thus, rather than arbitrarily imposing programs of a government department on a community that may not desire to participate in them, the department creates and implements programs in coordination with communities.

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<sup>85</sup> Takpa 25 April 2009

<sup>86</sup> Shaul 20 April 2009 According to Jigmet Takpa, villagers still receive cash compensation at a rate of 50% the livestock’s monetary value in areas of low tourism potential (Takpa 6 May 2009).

<sup>87</sup> Takpa 25 April 2009

### *Homestay Benefits for the Local Individual*

Although both these programs began relatively recently, they have resulted in substantial benefits to the local individual in addition to the local community. Villagers agree to accept tourists on a rotation basis so that monetary gains are distributed evenly among the community members. Padma Dolma and Tsewang Lamo of Rumbak informed me that they currently earn over 20,000 rupees per year from the homestay programs.<sup>88</sup> When asked how families use this extra income, Padma Dolma said that often it allows the village's children to attend private schools in Leh<sup>89</sup> where education, especially in English language, often exceeds in quality that of public education.<sup>90</sup> Padma Yangchen of Zhingchen, who also said that homestays bring over 20,000 rupees per year to her household, expressed that the extra income had helped supplement money lost to modern innovations. She said that she used to sell the wood of Willow trees as winter fuel to householders in Leh. Now, she said, many of these families own heating systems that eliminate the need to buy wood. Thus, the homestay system helps her continue to run her household.<sup>91</sup>

In speaking with Jigmet Takpa about the impact he has seen these homestays have on villagers, he said, “[they] are pro-conservation now...The homestays have improved livelihoods to a large extent...People in the area [of Rumbak valley] are really happy now with the department.”<sup>92</sup> Current

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<sup>88</sup> Dolma 1 May 2009. Lamo, Tsewang. Interviewed by Lauren Satterfield. Translated by Morup Tashi. Recorded as notes. Rumbak village, Ladakh, India. 2 May, 2009.

<sup>89</sup> Dolma 1 May 2009

<sup>90</sup> Chondol, Rigzen. Interviewed by Lauren Satterfield. Recorded as notes. Matho village, Ladakh, India. 22 April, 2009.

<sup>91</sup> Yangchen, Padma. Interviewed by Lauren Satterfield. Translated by Morup Tashi. Recorded as notes. Zhingchen village, Ladakh, India. 2 May, 2009.

<sup>92</sup> Shawl 21 April 2009

programs are relatively new, and their implementation has been contained mostly to Sham and Rumbak valleys with a few homestays currently in Zaskar and Markha areas.<sup>93</sup> However, it seems that in these target areas, such programs have met with a level of success.

### **Conflict Control Programs - Corral Pens, Livestock Insurance, Livestock Inoculation, and Summer Field Fencing**

As a complement to the efforts of the homestay programs, the DWP-J&K and independently the SLC-IT began a number of conflict control programs to prevent detrimental interactions between villagers and wildlife. These initiatives sought to address predator entry into poorly constructed corral pens, general livestock depredation, the passing of diseases from livestock to wildlife, and incidences of wild herbivores eating villagers' crops. The SLC-IT financed the construction of community corral pens and began implementation of a livestock insurance program. The DWP-J&K also built corral pens for both community and individual use, began providing inoculations to livestock to prevent the spread of disease, and supplied villagers with chain link fencing for enclosing crop fields.

According to Jigmet Dadul, the SLC-IT built its first corral pen in Markha around 1999. Since then, both community and individual predator-proof corral pens have been built around Sham, Zaskar, and Nubra valleys and in the area of Hemis National Park.<sup>94</sup> A pasture corral pen was built in Ulley village around 2006. While I was not able to see the structure myself, I was told by Tsewang Dorje, a villager from Hemis Shukpachen, that this

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<sup>93</sup> Morup 23 April 2009

<sup>94</sup> Dadul, Jigmet. Interviewed by Lauren Satterfield. Recorded as notes. Office of the Snow Leopard Conservancy – India Trust, Ladakh, India. 6 May, 2009.

corral pen has high walls topped by a solar battery powered electrical wire.<sup>95</sup> According to Jigmet Dadul, the SLC-IT provides the materials for these pens and the villagers themselves engage in the pen's construction.<sup>96</sup> Tsewang Dorje told me that people in nearby villages send livestock to be kept in the Ulley pen for the summer, and that he himself sends his female cows at the price of 300 rupees per animal paid to the shepherd Tsewang Norboo.<sup>97</sup> Thus, a community corral pen built in one village can also benefit the members of other villages nearby.

Around 2005, the SLC-IT began a livestock reimbursement program in Ulley. As of spring 2009, the program covers nineteen yak belonging to various villagers at a rate of 8,000-9,000 rupees per year for the entire herd through the National Insurance Company. Some of the money for this insurance comes straight from the villagers, while some comes from the village conservation fund. While none of the insured yaks suffered depredation attacks during the first two years of the program, wild animals killed two of the yak in June 2008. One belonged to Tsewang Norboo (Appendix 1.23) who acts as Ulley's shepherd, while the other belonged to another man in the community. According to Tsewang Norboo, he and this other man received compensation for the full price of the yak through the insurance program.<sup>98</sup> The SLC-IT plans to extend this insurance program to other villages in the future.

Since 2006, the DWP-J&K has built several smaller nighttime corral pens that hold the livestock of one family, along with a few communal pasture

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<sup>95</sup> Dorje, Tsewang. Interviewed by Lauren Satterfield. Recorded as notes. Hemis Shukpachen village, Ladakh, India. 13 April, 2009.

<sup>96</sup> Dadul 9 April 2009

<sup>97</sup> Dorje 13 April 2009

<sup>98</sup> Norboo 15 April 2009

pens in some villages in Hemis National Park. The pasture pens and nighttime corral pens have stone walls and 2"x 2" wire mesh on the roof, supported by wooden Poplar beams (Appendix 1.24).<sup>99</sup> According to Dorje Stanzin, president of the Youth Association for the Conservation and Development of Hemis National Park (YAFCAD HNP), a total of seven or eight pens have been constructed in the Hemis area.<sup>100</sup> Sonam Rinchen, a villager and shepherd in Rumbak village, explained that the DWP-J&K had originally offered to provide chain link and pay the villagers to construct the pens themselves at a rate of 20,000 rupees per pen. Due to the exorbitant amount of time involved in collecting the mud, rocks, and Poplar wood needed for the pen, the villagers had to turn down the DWP-J&K's offer. As a result, he said, the DWP-J&K built a corral pen in Urutse, one in Zhingchen, and two in Rumbak using their own labor. It was his understanding the DWP-J&K intended to build more pens once the funds were available.<sup>101</sup>

In a discussion with Tahir Shawl, Wildlife Warden of Leh District of the DWP-J&K, he stated that since the construction of these pens, "the incidents of [mass livestock] killings have decreased alarmingly."<sup>102</sup> He explained that there used to be many incidents where people would kill wild animals. However, since the implementation of programs, such as the one focused on constructing predator-proof corrals, these retribution killings have also "decreased alarmingly." Furthermore, in the two years that he has held the office of Wildlife Warden, he has not heard of even one case of villagers

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<sup>99</sup> Shawl 20 April 2009

<sup>100</sup> Stanzin 23 April 2009

<sup>101</sup> Rinchen, Sonam. Interviewed by Lauren Satterfield. Translated by Morup Tashi. Recorded as notes. Rumbak village, Ladakh, India. 2 May, 2009.

<sup>102</sup> Shawl 21 April 2009

killing wild animals.<sup>103</sup> While such instances cannot be completely eradicated, this interview suggests that prevention methods have significantly reduced and controlled the occurrences of retribution killings, at least in Leh District.

The DWP-J&K recently began programs to inoculate livestock and provide chain link fencing to villagers. Livestock inoculation provides protection to these domestic animals, a benefit to villagers, while also preventing the possibility of domestic diseases spreading to wildlife.<sup>104</sup> In addition, Sonam Rinchen from Rumbak explained that the DWP-J&K provided some villagers with chain link so that crop fields could be fenced and protected from wild and domestic animals. He again noted that, so far, time limitations had prevented most villagers from constructing these fences (Appendix 1.25).<sup>105</sup> Like the DWP-J&K homestay programs, these programs are also quite new, but they have the potential to bring increasing benefits over the next few years.

## **LADAKHI PERSPECTIVES ON WILDLIFE AND WILDLIFE CONSERVATION IN LIGHT OF CONSERVATION PROGRAMS**

### **Views of Ladakhi Scholars**

After speaking with Ladakhis of various ages, backgrounds, realms of work, and regional origins, I observed that rhetoric regarding Ladakhi knowledge of and interest in wildlife and wildlife conservation varies widely; it was unclear whether actual perspectives differ as such. Dr. Nawang Tsering, principal of the Central Institute of Buddhist Studies (CIBS), expressed the

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<sup>103</sup> Shawl 21 April 2009 Note that here the statement specifies no reports of *villagers* killing wild animals. This does not exclude the possibility that some other party could have killed wild animals during this time.

<sup>104</sup> Shawl 21 April 2009

<sup>105</sup> Rinchen 1 May 2009



belief that Ladakhis are “mostly indifferent” about wildlife and wildlife conservation, and that though it is mostly illegal now, they used to kill many wild animals for personal use. He said that Ladakhis have never really had a love for wildlife, and evidenced this by stating that he has seen few, if any, prayers, poems, or pieces of literature about wildlife in Ladakhi texts. Further, he suggested that this indifference could have been due to a shortage of Buddhist teachers in previous times.<sup>106</sup> In contrast, Jigmet Takpa, Conservator of Forests, Leh, said that Ladakhis may not be able to explain the interconnectedness of the food chain or other such academic details, but that they have a compassion for wildlife that comes with their culture, a culture that he saw as widely Buddhist. He substantiated this claim by saying that in Ladakh, wild animals allow people to come closer to them than in other areas. He said that these animals now have a confidence in the people, and that hunting by Ladakhis in previous times came out of a necessity to hunt for survival that no longer exists.<sup>107</sup> It could be that the “indifference” referenced by Dr. Nawang Tsering amounts to Jigmet Takpa’s explanation that conservation is innate in culture rather than coming overtly from education and discussion, thus requiring no active concern.

### **Views of Ladakhi Villagers**

When talking with villagers about their perspectives on snow leopards, I found a wide range of diversity among perceptions of the predator’s place in the ecosystem. A group of elderly male villagers in Yangthang told me they would prefer that the snow leopards went away. This way, they said, their

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<sup>106</sup> Tsering, Nawang. Interviewed by Lauren Satterfield. Recorded as notes. Central Institute of Buddhist Studies, Ladakh, India. 18 April, 2009.

<sup>107</sup> Takpa 25 April 2009

livestock would be safe.<sup>108</sup> My translator for a portion of this project, Tashi Stanzin, expressed the similar opinion that snow leopards, “are not very important... because they kill many animals.”<sup>109</sup> These were the two most negative perspectives I found toward snow leopards among villagers.

The house father from our homestay in Likir, Tsewang Norbu, expressed a slightly more balanced viewpoint. He said that snow leopards are, “...bad for domestic livestock, but good for bringing tourists, because tourists want to see the snow leopard.”<sup>110</sup> Despite the fact that my group acted as the first tourists staying at his home, Tsewang Norbu clearly found a connection between a predator that he saw as destructive to his livelihood<sup>111</sup> and the tourists that he saw as a positive presence in his village.<sup>112</sup> Skarma Eishay of Hemis Shukpachen, a man who had lost a sheep to two wolves just fifteen days before, told me that he believed wolves and snow leopards to be “important,” and said that they were, “good to see.” I was unable to gather an answer as to why these animals were “important” and “good to see,” but found that this villager definitely had a more tolerant attitude toward these predators, even saying that it was “no problem” that the wolves had killed his sheep.<sup>113</sup>

Villagers who had more positive perceptions of snow leopards than those shown above made causal links between the animal and what its presence provides. Nawang Tsultim, a monk from Likir Monastery, had some thoughts that ranged from retribution killings, to Buddhist teachings, to

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<sup>108</sup> Gyalton, Dorje, Smanla Tsering, and Punstock Stanzin. Interviewed by Lauren Satterfield. Translated by Tashi Stanzin. Recorded as notes. Yangthang village, Ladakh, India. 11 April, 2009.

<sup>109</sup> Stanzin 11 April 2009

<sup>110</sup> Norbu 11 April 2009

<sup>111</sup> Tsewang Norbu lost at least one sheep to a snow leopard in October 2008.

<sup>112</sup> Norbu 11 April 2009

<sup>113</sup> Eishay, Skarma. Interviewed by Lauren Satterfield. Translated by Tashi Stanzin. Recorded as notes. Hemis Shukpachen village, Ladakh, India. 12 April, 2009.

biological interconnectedness. He said that people used to kill the snow leopard, but that such practices are now illegal. He argued that people know the difference between good and bad, while animals like the snow leopard do not. The latter needs food and “has no choice” but to kill as he “cannot eat grass,” or cannot sustain himself otherwise, but that people should know better than to kill a snow leopard. When asked what would happen if snow leopards disappeared, he answered simply, “the ecological balance would be lost.”<sup>114</sup> Tsewang Dorje of Hemis Shukpachen expounded on this idea of ecological balance by telling me that, “snow leopards keep the wolves and foxes away.”<sup>115</sup> Although I could not gain an explanation of how he understood the presence of the snow leopard to limit the presence of other predators, Tsewang Dorje clearly had the perception that the snow leopard’s existence prevents other problems for him and his livestock, despite the predatory nature of the carnivore itself. Finally, Tsewang Norboo of Ulley took an equally clear stance on the importance of the snow leopard, although in a way less related to ecosystems. He felt strongly that the snow leopards in his area allowed the village many benefits, among them a predator-proof livestock corral, homestay training and material, and a livestock insurance program all gained through technical and financial help from the SLC-IT. He said that if the snow leopard were gone, “All would be lost. Everything would be lost.”<sup>116</sup> For him, programs directed toward protecting the snow leopard now brought him a new

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<sup>114</sup> Tsultim, Nawang. Interviewed by Lauren Satterfield. Recorded as notes. Likir village, Ladakh, India. 10 April 2009.

<sup>115</sup> Dorje 13 April 2009

<sup>116</sup> Norboo 15 April 2009 Two different villagers from Hemis Shukpachen told me to speak with Tsewang Norboo of Ulley, both stating that he “knows about snow leopards.” Tsewang Norboo appeared to have a significant role in his community, acting as a local link between villagers and the conservation efforts of the SLC-IT. However, it must be noted that the translator for this interview was Jigmet Dadul, program supervisor for the SLC-IT, and so responses in the interview may have been biased toward the SLC-IT’s programs.

and preferred way of life.

### **Philosophies of Conservation**

The philosophies that have motivated the programs of the DWP-J&K and the SLC-IT have played a large part in the types of programs these organizations have chosen and how they have been implemented. SLC-IT programs utilize town planning and brainstorming sessions that, in conjunction with local members of the SLC-IT, develop programs beneficial for both villagers and wildlife. Jigmet Takpa of the DWP-J&K explained that in Ladakh, he strives to avoid what he calls “The Island Model of Conservation.” He explained that in many areas of the world, conservators confine their efforts to one distinct area, such as a national park. This policy protects animals within the park’s boundaries, but immediately outside this park the same animals find significantly reduced protection. He said that wildlife knows nothing of park boundaries, and such distinct borders “restrict the genetic movement of wildlife,” generating inbreeding and reducing or altogether preventing the ability to reintegrate a species that may have gone extinct in the area.<sup>117</sup> In Ladakh, conservationists have avoided such partition philosophies. Jigmet Takpa has acted under what he calls “The Landscape Model of Conservation.” In this model, the establishment of national parks acts to identify an area where a high density of often rare wildlife exists, but in no way do these parks limit the conservation area. He explained that all “landscape” is considered a conservation area, whether it falls inside or outside a park. He further noted that he has worked to keep villagers on their

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<sup>117</sup> Takpa 25 April 2009

traditional lands inside parks. He stated that without the watchful eyes of these residents, poachers would easily decimate the wildlife he and others have worked so hard to save.<sup>118</sup> Thus, he saw people as an asset to conservation rather than as an obstacle. He expressed that the people of Ladakh now live in relative harmony with the wildlife around them. He made sure to note, however, that human-wildlife conflicts such as depredation or competition for grazing land will always exist. Thus, his conservation model seeks to control such conflicts and keep them at a level sustainable for people and wildlife rather than attempting to prevent them altogether.<sup>119</sup>

### **Changing Perspectives and Reactions**

A recent incident of depredation in Nemo village displays both an instance of tolerance in light of devastation and the philosophy of controlling and managing conflicts as described by Jigmet Takpa. On the night of November 27<sup>th</sup>, 2008, a female snow leopard entered the cattle pen of Tsewang Dorje through a low window (Appendix 1.26).<sup>120</sup> Once inside, she killed twenty-five sheep (Appendix 1.27) and in the process received extensive wounds on her back and sides (Appendix 1.28). When the owner discovered the snow leopard the next morning, a relative called the DWP-J&K to retrieve the animal. Members of the DWP-J&K's tranquilization team came and removed the animal and local veterinarians gave it medical treatment. Although Tahir Shawl's hopes for the predator's survival were low, she made a full recovery and still resides on the grounds of the compound of the Wildlife Warden (Appendix 1.29). She will be released once a satellite collar

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<sup>118</sup> Takpa 6 May 2009

<sup>119</sup> Takpa 25 April 2009

<sup>120</sup> Shawl 25 April 2009

has been placed on her for study.<sup>121</sup> From the report, it appears that had the villagers done nothing, the snow leopard most probably would have died. Whether they simply desired to remove the animal from the cattle shed or whether they understood the severity of the snow leopard's situation, the villager of Nemo in effect saved the animal with a prompt phone call.

However, removal of the snow leopard could not revive the great number of sheep lost to the incident. Speaking with Tsering Kunzom (Appendix 1.30), wife of Tsewang Dorje, I learned that three sheep did survive the event, and that through breeding them she now owns eight sheep. She said that the snow leopard ruined everything. She stated that she cannot say whether the animals are good or bad, and that perhaps they are a necessity, but that she does not want them coming to Nemo. I asked her what she thought should be done to resolve such conflicts. She responded that "there are no visiting hours for the snow leopard."<sup>122</sup> Instead, she said, people can make smaller windows and stronger doors on their cattle sheds. Still, she noted, when taking the animals to graze, one animal can still get taken from the end of the herd. Tsering Kunzom's response indicated a philosophy of conflict prevention by improving and predator-proofing livestock enclosures. Indeed, the window where the snow leopard had entered her pen had since been covered with a large amount of soil (Appendix 1.31). In times past, the solution for such conflicts may not have been so positive for the predator. When asked what sort of compensation she would receive for the dead sheep, she responded that she did not ask for more sheep because the three that survived were enough. She said that the DWP-J&K had offered some

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<sup>121</sup> Shawl 20 April 2009

<sup>122</sup> Kunzom, Tsering. Interviewed by Lauren Satterfield. Translated by Morup Tashi. Recorded as notes. Nemo village, Ladakh, India. 29 April, 2009.

homestay materials, and that she would probably accept them if they came.<sup>123</sup>

Tahir Shawl of the DWP-J&K explained that such materials will be distributed once the DWP-J&K's funding check clears for the 2009/2010 fiscal year. The same check will be used to purchase the satellite collar for the snow leopard.<sup>124</sup>

## CONCLUSION

The story of the Nemo snow leopard brings into clear focus the fact that human-wildlife conflicts have not and will not be completely solved in Ladakh. On the contrary, a growing human population and a modernizing world will probably lead to increased conflict with wildlife. This will, in turn amplify the challenges faced by government parties such as the DWP-J&K and NGOs such as the SLC-IT. Wildlife conservation projects in this high-altitude desert have sought to create programs that respect the needs of local people while continuing to work for the protection of a rare and diverse ecological district. As a result, according to Jigmet Takpa, once-dwindling wildlife populations have begun to flourish again over the past ten years.<sup>125</sup> Through the implementation of community education, income-producing homestays, and conflict control programs, the organizations working on behalf of Ladakh's wildlife have encountered successes in changing the way local people react to wildlife conflicts. Whether such reactions resulted from more positive views toward wildlife conservation or simply from adherence to advocated policy was less clear. It also remains to be seen whether the

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<sup>123</sup> Kunzom, Tsering. Interviewed by Lauren Satterfield. Translated by Morup Tashi.

Recorded as notes. Nemo village, Ladakh, India. 29 April, 2009.

<sup>124</sup> Shawl 25 April 2009

<sup>125</sup> Takpa 25 April 2009

homestay systems can be sustained in the long term, as they are supported by outside economic forces and the preferences of a mostly non-Ladakhi demographic. For the moment, however, these district-wide conservation systems and the philosophies that drove their creation are decreasing instances of the human-wildlife conflicts inherent to Ladakh.

## **METHODOLOGY**

In preparation of this research, I reviewed multiple articles concerning general predator conservation, general snow leopard conservation, and wildlife conservation in Ladakh. My research methods during the month included interviews with urban and rural Ladakhis and conservation experts. Some interviews were conducted in English while others were held in Ladakhi with the use of a translator. I traveled as a participant observer to two different areas of Ladakh, Sham valley and Hemis National Park, where I took food and rest in these conservation-driven homestays. I also observed a session of the Snow Leopard Conservation Education Programme in Matho village. Whenever possible, I attempted to gain copies of original education texts for examination and comparison, and successfully found government school books and Centre for Environmental Education readers. I spoke with multiple individuals from both the DWP-J&K and the SLC-IT to gain a deeper understanding of their respective conservation programs. Most villagers I approached at random, although I interviewed one or two specifically due to their extensive involvement in wildlife conservation programs. In writing this synopsis of research, I sought to make background information accessible for someone unfamiliar to the conservation field.



## LIMITATIONS

The field research for and written compilation of this project were executed in just over one month of undergraduate research in Ladakh, India during April and early May of 2009. In Ladakh, April and May mark the very end of winter and the very beginning of plowing and tourist season. As a result, many of the villagers I desired to speak with had limited time due to needs on their fields. This was especially so as the month progressed. Thus, I was often only able to speak with one to two villagers or groups of villagers per village. Not speaking Ladakhi myself, I had to rely on translators to conduct most of the interviews with villagers, and thus my conversations with non-English speakers come with a reduced credibility of information. Due also to time limitations and the remnants of winter snowfall on many passes, I contained my study to the town of Leh; the villages of Likir, Yangthang, Hemis Shukpachen, and Ulley in the Sham valley; Rumbak village in the Rumbak valley of Hemis National Park; and to some noteworthy sites in the surrounding area, including the middle school and university at the Central Institute of Buddhist Studies (CIBS) in Choklamsar, the public middle school in Matho, and the village of Nemo. I was not able to visit the Inner Line areas of Nubra and Changtang, nor was I able to visit the Zaskar range or Markha valley, the latter of which experienced a large number of snow leopard encounters with livestock as well as an educational program run by the Snow Leopard Conservancy (SLC)<sup>126</sup> and a People-Wildlife Conflict Resolution Workshop headed by the International Snow Leopard Trust (ISLT)<sup>127</sup> to

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<sup>126</sup> Angmo, Rinchen. Interviewed by Lauren Satterfield. Recorded as notes. Office of the Snow Leopard Conservancy – India Trust, Ladakh, India. 9 April, 2009.

<sup>127</sup> Jackson 1999, 22 Some funding for this workshop also came from the Ladakh Ecological Development Group (LEDeG)

address these detrimental encounters. Finally, SIT Study Abroad policy mandates that all interviewees of undergraduate students be at least eighteen years of age. All current students and graduates of the Ladakhi wildlife education programs discussed here were younger than eighteen during the time of study. It is for these reasons that my paper does not include an examination of these programs from the students' perspectives.

### **SUGGESTIONS FOR FUTURE RESEARCH**

To continue the study begun here, a researcher could explore any of several different avenues. As already mentioned in the conclusion, one could take a closer look at human attitudes toward wildlife and snow leopards with the goal of determining the reasons behind different levels of conflict tolerance. A study conducted some years from now could look at the possible changes of homestay systems and local attitudes toward them. One could conduct a more in-depth and widespread examination of Ladakhi wildlife education programs and the effects they have on perceptions of and reactions to wildlife presence. The organization of women as a result of this homestay system brings forth yet another avenue for investigation. Understanding homestays and other systems geared toward trekkers from a tourist perspective would add a valuable angle to this research. One could follow up on the future projects that will be associated with the Nemo snow leopard once it is collared and released. Finally, examining mentalities toward wildlife conservation in Leh District, a largely Buddhist area, in comparison to Kargil District, a largely Muslim area, could provide useful information regarding religious connections to wildlife conservation.

## APPENDIX I – PICTURES



1.1 Two people working on computers below Wildlife Protection Division – Kargil conservation posters in Sky Cyber Café.



1.2 Artwork of a black-necked crane above the words “Conserve Wildlife” crafted on a hill on the road to Likir.



1.3 An example of prime snow leopard habitat in Ulley village.



1.4 A herd of goats and sheep going to pasture near Rumbak village. Sometimes predators will descend from the hills and kill a straggling member of a domestic herd.





1.5 A poorly constructed cattle shed window. Openings are larger than 4"x 4", possibly large enough to allow a snow leopard inside.



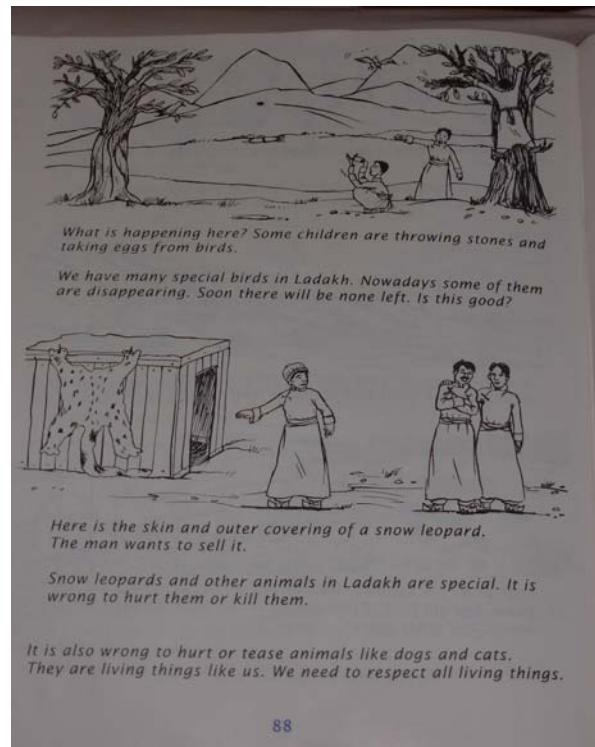
1.6 A well-constructed cattle shed window. Openings are smaller than 4"x 4" and protected by metal strips.



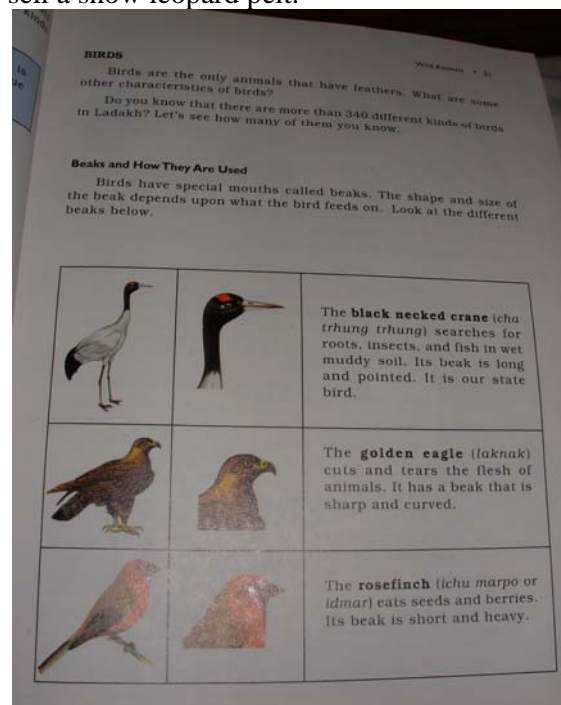
1.7 Tahir Shawl, Wildlife Warden, Leh of the DWP-J&K in his office.



1.8 Jigmet Takpa, Conservator of Forests, Ladakh of the DWP-J&K in his office.



1.9 A page from the Environmental Studies Workbook for Class III displaying a man trying to sell a snow leopard pelt.

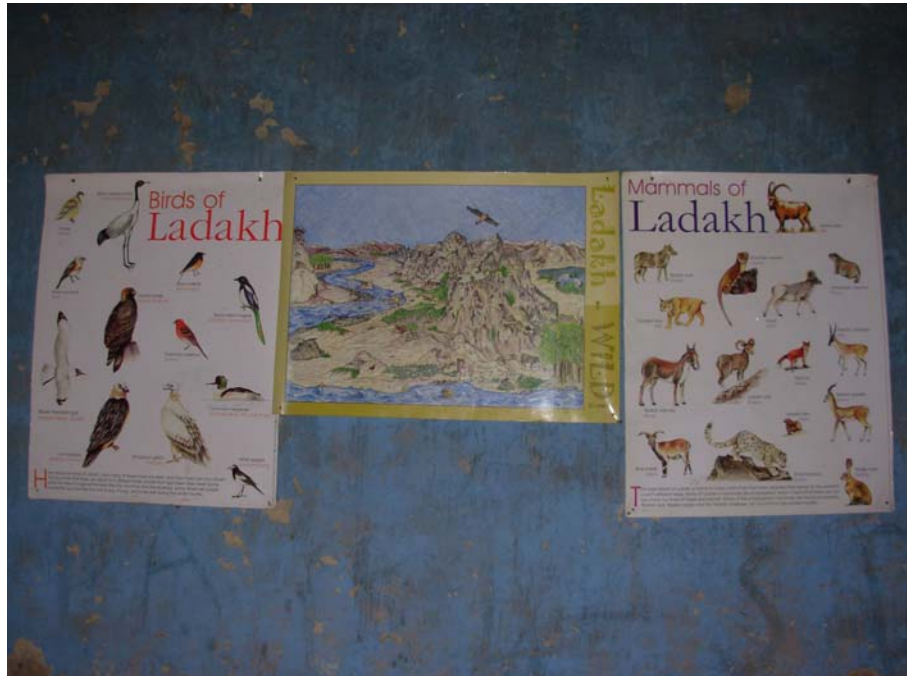


1.10 A page from the Environmental Studies Part I for Class IV book displaying information about different beaks.



1.11 A picture of the “Web of Life” game, a part of the Snow Leopard Conservation Education Programme. In the game, each student hangs a card around their neck representing some aspect of the ecosystem. The student playing “Sun” begins with a piece of string and students successively must pass the string to a part of the ecosystem that depends on their role until a web is formed. [Photo courtesy of the SLC-IT photo bank]

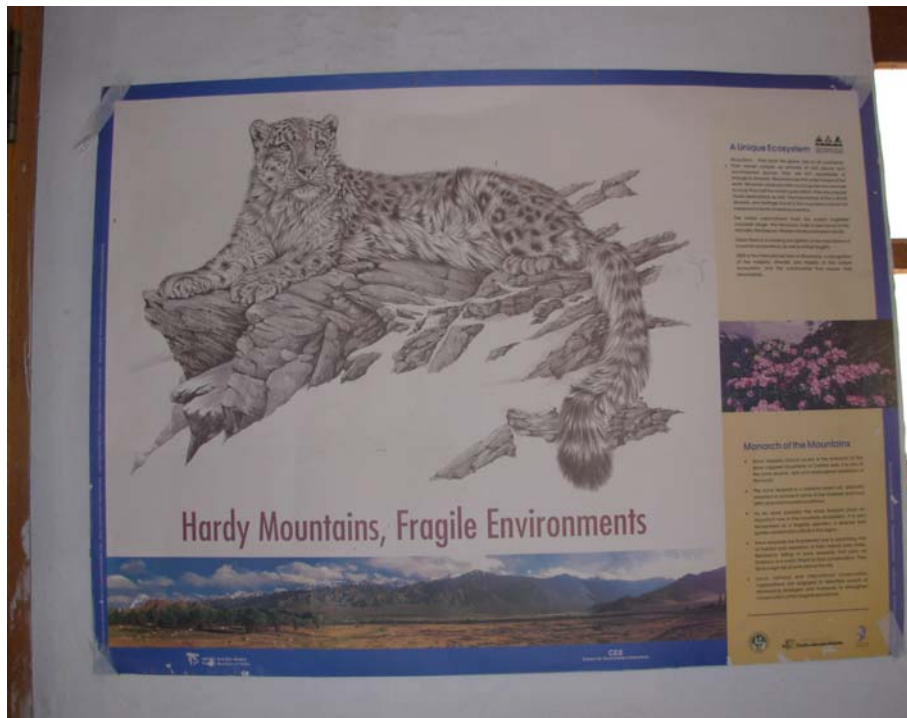




1.12 A picture of three color posters used for the Snow Leopard Conservation Education Programme. The posters are titled “Birds of Ladakh” and “Mammals of Ladakh” include both the English and Ladakhi name of the animal.



1.13 A picture of SLC-IT’s program supervisor, Jigmet Dadul, working on a village trash clean-up project in Markha village as part of the Snow Leopard Conservation Education Programme. [Photo courtesy of the SLC-IT photo bank]



1.14 One of four “Hardy Mountains, Fragile Environments” posters produced by the CEE. This poster hangs in the Ladakh Ecological Development Group [LEDeG] library.



1.15 Biscuits, yos (roasted barley and apricot nuts), and butter tea served by Tsewang Norbo of Likir at his home.





1.16 A guest room in the homestay of Tsewang Norboo of Ulley village.



1.17 A tree on which rest a multitude of magpies, visible from the window the guest room of Tsewang Norboo's homestay in Ulley village.





1.18 Two dzo pulling a plow through a field in Rumbak village.



1.19 A fenced grove of young willow trees in Rumbak, planted with money from the village's conservation fund.



1.20 An example of a parachute café.



1.21 An example of a homestay sign distributed by the DWP-J&K. This one hangs on the Rabgaisha house in Rumbak village.





1.22 Dorjy Stanzin's Certificate of Completion for the DWP-J&K's Eco-Tourism Guide Training. Dorjy Stanzin now acts as president of the YAFCAD HNP.



1.23 Tsewang Norboo, a shepherd and involved local conservationist from Ulley village.



1.24 DWP-J&K predator-proof livestock enclosure in Rumbak village.



1.25 A fenced crop field in Rumbak village.





1.26 The rock at the bottom of the stairs covers the hole where a snow leopard entered a Nemo cattle shed in November 2008. [Photo Courtesy of Tahir Shawl, Wildlife Warden – Leh, DWP-J&K]



1.27 The sheep casualties in the Nemo cattle shed in November 2008. The snow leopard still remains the in back left corner. [Photo Courtesy of Tahir Shawl, Wildlife Warden – Leh, DWP-J&K]





1.28 The wounded snow leopard receiving medical treatment at the DWP-J&K. [Photo Courtesy of Tahir Shawl, Wildlife Warden – Leh, DWP-J&K]



1.29 The snow leopard taken from the Nemo cattle shed at the DWP-J&K. Here it has fully recovered and awaits the attachment of a satellite collar prior to release. [Photo taken by the author with permission of Tahir Shawl, Wildlife Warden – Leh, DWP-J&K]



1.30 Tsering Kunzom of Nemo whose family owned the sheep killed by the snow leopard in November 2008.



1.31 The window where the snow leopard entered in Nemo village, now covered by a large amount of soil.

## APPENDIX II - GLOSSARY OF TERMS

**Corral Pen:** an enclosure that holds livestock. An individual pen holds the livestock of one family, usually within the village, while a community pen holds the whole village's livestock at the summer pasture.

**Depredation:** the killing of a domestic animal by a wild predator.

**Homestay:** a situation where travelers, or trekkers, stay in the homes of villagers and pay the homeowners for dinner, breakfast, and lodging.

**Livestock reimbursement:** a system by which individuals are given monetary reimbursement for livestock killed by a particular predator.

**Local population:** the main population inhabiting a given region.

**Retribution Killing:** extermination of a problem animal believed to have attacked or killed livestock, or one believed to have the potential to do so.

**Stupa:** a religious monument. In Leh District of Ladakh, stupas are, in general, Buddhist structures built using stone, clay, and a central Juniper branch; shaped like a cube or a dome; and erected along paths or at the tops of mountain peaks.

**Whitewashing:** the painting or repainting of a structure, usually a stupa or monastery, using the color white. If sufficient funds are available, communities whitewash their religious structures approximately once per year.

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