



 **The Tributary Fund**
CONSERVATION TOOLKIT

SNOW LEOPARD TOOLKIT

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Snow Leopards and Buddhism Teachers' Guide for Bhutan

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Introduction for the Teacher: How To Use This Booklet

As a Buddhist leader and teacher, you can do much to build awareness of Bhutan's rare and magnificent snow leopard. This booklet is designed for you and your students. It offers lessons using ancient Buddhist stories as well as the latest information on snow leopards in Bhutan. Inside, you will find ideas to help you, your students and your community learn about, observe and protect snow leopards.

This is a teachers' version of the student booklet. It has five sections not found in the student booklet: The Table of Contents, this Introduction, Appendix A (Teacher Notes for each chapter), Appendix B (Contacts) and Appendix C (Teaching Activities). Throughout this booklet words in **green** are defined in the Glossary.

Chapter 1 builds on your teachings of compassion toward all sentient beings, with Buddhist stories about species and snow leopard protection.

Chapter 2 tells about snow leopards.

Chapter 3 explores why we should care about all of Bhutan's rare plants, animals, and insects.

Chapter 4 was developed with the help of a snow leopard biologist. It has ideas on snow leopard conservation--things you and your students can do to protect snow leopards.

Chapter 5 is all about protecting the places and habitats in your own environment, and the Buddhist stories that celebrate them. This is a chance for you and your students to reflect on what you've learned and how you will move forward from this day on.

Glossary lists concepts good for you and students to understand when talking to wildlife researchers in your region.

Observation Basics, inside the back cover, is for students keen on making observations in the wild. It is a handy review of the information scientists collect when studying snow leopards.

Appendix A, Teacher Notes, has discussion ideas and extended activities for each chapter.

Appendix B, Contacts, lists people and agencies in Bhutan who can help with snow leopard questions.

Appendix C, Teaching Activities, are lessons borrowed from other publications to help you go into more depth with students. These activities are not shown in the student booklets, and are referenced in **blue** in the teacher notes.

Chapter 1. Buddhism and Nature

Milarepa and the Snow Leopard

All animals are worthy of compassion, and some are included in special Buddhist stories. Many sacred characters in these stories are from the cat family. The most familiar snow leopard story is of the famous 11th century saint Milarepa, taking the form of a snow leopard in Tibet.



*Milarepa, manifested as a snow leopard, is leading his disciples to the Great Cave of Conquering Demons where he is meditating.
Illustration by Monk Nima, Bhutan, 2012*

One winter, nearly a thousand years ago, there was so much snow in the remote area of Lachi Mountain in Tibet that the great sage, Milarepa, was unable to leave the cave where he had gone into a long retreat.

The cave was called the Great Cave of Conquering Demons and was a place where Milarepa's disciples, living below in the village, were unable to bring him food for six months. They were convinced that he must have died, as there was nothing that he could have grown for himself.

It was finally spring, and Milarepa's disciples climbed the mountain to look for the saint. They were afraid of what they would find. Walking up the mountain was long, tiring work, and they sat for a while some miles from the cave, taking a rest in the cold sunshine. Looking toward the cave, one of the sharper-eyed disciples saw a snow leopard in the distance, climbing upon a huge rock. It turned toward them, then disappeared.

Now they felt despair. They would probably not find even the great man's body, as the snow leopard, starving in the ice-cold winter, would surely have found it and eaten it. As they approached the cave they could see human footprints alongside the recent tracks of the cat. At the cave, instead of the desolation they had feared, they found Milarepa sitting happily, singing hymns. He greeted them warmly. "I saw you resting on the other side of the pass," he said, indicating the steep rock, which no man could climb. In amazement they realized that the snow leopard was Milarepa and Milarepa was the snow leopard, a manifestation of his own self.

The Buddhist belief is that all beings are mind, and that the physical body is temporary. It is believed that the greatest masters of Buddhism can move into other bodies, and experience nature in different ways.

One of the Songs of Milarepa tells of how celebration of Nature is part of our vital and valid experience of the external world:

*"At my back the Red Rock of Heaven rises;
At my feet, wild flowers bloom, vibrant and profuse;
At my cave's edge wild beasts roam, roar and grunt;
In the sky, eagles and vultures circle freely;
Bees hum and buzz with their chanting;
Mares and foals gambol, and gallop wildly;
Through the trees monkeys leap and swing;
And the larks carol in sweet song;
The timely sounds I hear are all my fellows;
The merits of this place are inconceivable—
I now relate them to you in my song."*

EXERCISE: MY NATURE STORY

What does nature mean to you?

Try writing a story or poem about your own experience of nature. What do you hear?
See? Smell?

Can you imagine what Milarepa must have experienced while he was a snow leopard, watching his followers climb the mountain? What might he have seen or felt that would be different from a human seeing the same scene?

The Arrival of Buddhism in Bhutan

In the year 777 the Queen of Kharchen gave birth to a baby girl, called Yeshe Tsogyal. At the very moment she was born, a spring of fresh water burst from the ground right at a place that later became a famous pilgrimage site called Lha-tso, or “Divine Lake”. When a teenager, the young princess was engaged to a cruel man who hurt her and then abandoned her to the Emperor’s harem. But when she was 16, she was freed and became the disciple of the Guru Padmasambhava, who was later called Guru Rinpoche, the Precious Guru.

It is said in the ancient stories of Bhutan that when Padmasambhava made the long journey across the Himalayas to bring Buddhism to the people of Bhutan, he travelled on the back of Yeshe Tsogyal, who had transformed herself into a flying tigress for this arduous journey. The Bhutanese people are so grateful that they named their most ancient Buddhist site “The Tiger’s Nest” Monastery, or Paro Taktsang. So it is that Bhutan’s most precious jewel was brought to the country on the vehicle of a great cat.

Snow Leopards in Bhutanese Tradition

Many more tales tell of great lamas frequenting trips to Tibet and Bhutan in the form of snow leopards in search of rare medicinal herbs. Local people often refer to the snow leopard as a “fence”, to express how snow leopards prevent grass eaters like blue sheep, takin and musk deer, and domestic livestock like sheep, cattle and yak, from roaming, thus avoiding invasion of crop fields.

Some people believe snow leopards are born to remove the sins of the locals’ past lives. Therefore, killing these animals results in transferring past sins back to the people. In some places it is thought to be even more sinful to kill a snow leopard than to kill its prey. This is because all sins committed by the snow leopard each time it kills prey will then be transferred to the snow leopard’s hunter.

What is the Buddhist Belief about Protecting Nature?

Lord Buddha was born in a garden. He carried out religious practices in a forest. He attained enlightenment under a tree and he gave his first teaching at a park. It is written that the monasteries where Buddha offered his teachings were all beautiful, with diverse gardens and forests, such as the Amravana Garden, Bamboo Grove and Jeta Grove. He taught that compassion was the greatest of all practices.

When Buddhists practice, we learn to extend compassion to all sentient beings. We take steps to maintain a balanced environment, true to the life of the Buddha. Part of that compassion is to pass on a diverse, clean and vibrant home to future generations of humans and animals.

Many have spoken out against the ill treatment and hunting of species. In 2006, His Holiness the Dalai Lama pleaded with the Tibetan people to ban trade of wild animals and their products. This caused massive bonfires of animal skins in Tibet. People there have since forbidden the wearing of animal skins.

His Holiness also says that due to ignorance in the past, humans have committed crimes against our planet Earth. But today, he says, “we have the capability and the responsibility to act; we must do so before it is too late.”

Buddhist Quotations about Nature

“The decision to save the environment must come from the human heart. The key point is a call for a genuine sense of universal responsibility that is based on love, compassion and clear awareness.”

His Holiness the Dalai Lama

“Buddhism has a long tradition of environmental protection. Buddha taught the concepts of interdependence, of cause and effect, of karma, and of dharma values. Most dharma practitioners want to contribute positively to preserving the environment, but unless we all work together, no solution will be found. Moreover, although we have begun to learn lessons from what has already taken place, good wishes alone are not enough to bring about change. We have to assume active responsibility.”

His Holiness, the 17th Gyalwang Karmapa Ogyen Trinley Dorje

His Holiness the Karmapa also sees a shift from harming of the environment by previous generations. Today we have access to information about the state of the environment, and therefore cannot afford to tread the same path. He says, “Our task now is to turn information into an awareness that we feel in our hearts, and that can inspire us to live with environmentally wise and compassionate principles.”

Chapter 2. Have You Ever Seen a Snow Leopard?

What Do Snow Leopards Look Like? Where Are They?

Snow leopards are a very rare species – and Bhutan is one of the few places where they live. In the entire world, there are perhaps only between 3,500 and 7,000 snow leopards. They live in mountainous areas of central and south Asia, in these twelve countries: Afghanistan, Bhutan, China, India, Kazakhstan, the Kyrgyz Republic, Mongolia, Nepal, Pakistan, Russia, Tajikistan, and Uzbekistan. Around 650 snow leopards are housed in zoos around the world.



A map of where snow leopards live (Fox 1994)

From the top of their head to the tip of their long tail, this sleek cat can span up to 2.3 meters. The adult cats weigh between 35 and 55 kg, depending on age, how much food is available and whether they are male or female. Usually males are about 30% larger than females.

Snow leopards can jump about six times their body length. This is because their front legs are shorter, and their hind legs are longer and more muscular. They have very strong chest muscles meaning they can climb steep mountain walls and cliffs, and their powerful lungs help them capture oxygen from the thin mountain air. Inside their noses, a chamber helps warm the cold thin air before it gets to the lungs.

This is a picture of a snow leopard. Can you see the difference between the front legs and hind legs? Take a look at the other special features. The dense and woolly fur is patterned with dark gray spots and rosettes. It sheds twice a year and in the winter grows a thicker coat of white with brown or black spots. In the summer the coat is shorter and yellowish with brown or black spots. Why do you think the coat changes color?



Those markings **camouflage** him in his mountainous habitat, so he is not easily visible in the landscape, allowing him to sneak up on prey. And that longer belly fur keeps him warm in winter. His thick tail is a whole meter long, which helps him with balance. Often when it is really cold he will wrap that long tail around his body and face to stay warm. The large furry paws help him walk on snow.



You can see the beautiful rosettes pattern in the snow leopard fur here. This helps hide him from predators.



The tail keeps the snow leopard warm and balanced.



His big paw helps navigation in the snow.

Snow leopards move to different places depending on season. In summer, they live in rocky mountainous regions, at altitudes between 2,700 and 6,000 meters. The winter prompts them to descend below the tree line to around 1,200 to 2,000 meters. In Bhutan they have been seen in Wangchuck Centennial Park, Jigme Dorji National Park and Bumdeling Wildlife Sanctuary.

For most of their lives, which average between 15 to 18 years, they live on their own, which makes them extremely hard to find. And, while most other big cats are **territorial**, snow leopards are not. However, they do live in a well-defined home **range**, which varies quite a bit in area depending on availability of food. They travel mostly at dawn and dusk, and when there is lots of food to eat, a home range can be as small as 12 km². In **habitats** where there is not a great deal of food, the range expands to 500 km² or more--about a tenth the size of all of Bhutan. So, you can see they often travel far to find food.

Like most big cats, snow leopards will kill and eat just about every animal they come across, including domestic livestock. Unlike other cats, they also eat plants to supplement their diet. Even so, on average they must kill a large animal every 10-15 days to stay healthy. While it consumes the meat, it will remain with its kill for up to 3 days, protecting it from ravens. Snow leopards eat everything from large animals like the blue sheep, Himalayan tahr, markhor and argali, to smaller prey such as hares, marmots, pikas, various rodents and birds. They have never been known to attack humans.

In the Himalayas, blue sheep are a major part of snow leopards' diet. They use the rugged terrain to hide in so they can ambush the sheep from above. First, they leap from as far away as 14 meters, attacking with a bite to the neck. Then they may drag the prey to a safe location before feeding. They consume all edible parts of the animal, and can survive on a single blue sheep for two weeks before hunting again. Each snow leopard might consume between 20 and 30 blue sheep a year, so it makes sense to protect the blue sheep as a way to protect the snow leopard as well.

Evidence of Snow Leopards

How do we find a snow leopard? Although you may never actually see a snow leopard, there is plenty of **sign** to indicate their presence. They leave things behind to define their **territory** as well as their travel routes. Doing this helps them avoid each other when they want to be on their own, but also helps males and females find each other during mating season.

Here are some of the snow leopards' signs:

Scrapes: To make a scrape, a snow leopard scratches its back legs in loose soil or rock patches, making a small indent with a pile of soil next to it. They often spray urine and deposit scat there too.

Scent marks: A snow leopard shoots pungent spray on rocks, bushes and boulders from a scent gland near its tail. It will then spread that scent by rubbing its cheeks against the rocks.

Scat: Feces, or scat, can be deposited alone but most often seen with other sign. Here's what their scat looks like.



Claw raking: These scratch marks are left by clawing on tree trunks or rock faces.

Tracks: "Pugmarks" are an imprint of the foot on soft ground, but do not last long.

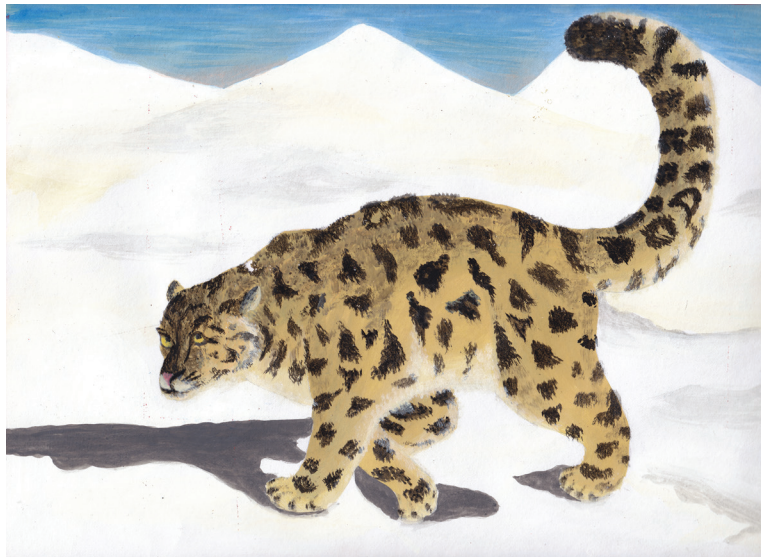
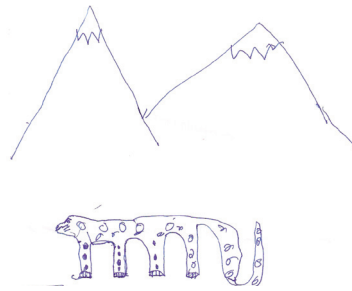


EXERCISE: IMAGINE A SNOW LEOPARD

Have you ever seen a snow leopard or do you know someone who has?

Imagine you are in a remote region, crouching right next to this amazing creature. What would that be like? What does it look like? What does it smell like and sound like to be so close? Imagine what the snow leopard is doing. Is it in danger? Is it looking for food?

Write a story about meeting a snow leopard or seeing signs that it is nearby. It can be based on your own experience--or use your imagination. Try drawing a snow leopard, too, using your new knowledge



MY STUDENT PAGE

About Me:

Name:

Age:

Village:

Number of People in My Family;

My Interests:

My Story and Picture About a Snow Leopard:



Chapter 3. It Matters

Why should we care about snow leopards?

The Buddha answers by saying that all sentient beings are equal and that the four “immeasurables” — loving kindness, compassion, equanimity and joyfulness — must be offered to everyone.

One thing that Buddhists, and scientists, study is the effect all things have on each other, and they all agree that everything is connected: it is just a matter of seeing how.

For instance, if animals no longer had shelter or the right food, would they survive? Even the tiny bee, or other pollinators like birds and bats, would die if they did not have the right vegetation, rain and nutrients. And without pollinators, life as we know it would not exist because they carry pollen from plant to plant, assuring seeds and plants for the next generation.

In the following passage an American scientist talks about the way habitat change can force species to change.

“And why are there so many different species of animals and plants? The answers are evolution and time. The Earth is a very old place, and life on Earth has been changing--evolving--for hundreds of millions of years. Over all that time, animals and plants have struggled to find food and shelter for themselves and their children. They have competed against one another. Their competition has forced them to make use of every possible way of living--every kind of food, every shape of body, every way of moving around, and every kind of hiding place that exists on the planet. When a species changes gradually to fit itself and its habits to a new kind of life, that change is called evolution. Because the world is big, with many different kinds of places to live, and many different possibilities of what to eat and how to hide, evolution has led animals and plants to assume many, many, many different shapes and habits. Those different kinds of plants and animals are the different species we see today.”

~ David Quammen

It is part of the nature of impermanence that some species will evolve to extinction. This can happen naturally, or through destruction to habitat. But it should never happen because of the human lack of love and care for all sentient beings.

Across the Himalayas, snow leopards are dying. Sometimes it is because there is not enough food for them, sometimes it is because their natural habitat is being destroyed, and often it is because they are being killed illegally. How do our actions hurt the health of the world? What can we do to keep the snow leopard habitat healthy?

Perhaps the most famous animal that became extinct through human actions is the dodo, a flightless bird that was native to the remote island of Mauritius, in the Indian Ocean. In 1598 a Dutch

fleet of ships found a way to land on the island and, for the first time, humans settled there. They soon found how easy it was to hunt these huge birds, which measured about a metre tall, and probably weighed more than 10 kilograms. Less than a century later, the dodo was extinct, a victim to over-hunting, greed, and its own inability to escape the new threats.



This is how American scientist David Quammen imagined the last dodo in the world:

Imagine that she was thirty years old, or thirty-five, an ancient age for most sorts of bird but not impossible for a member of such a large-bodied species. She no longer ran, she waddled. Lately she was going blind... In the dark of an early morning in 1667, say, during a rainstorm, she took cover beneath a cold stone ledge at the base of one of the Black River cliffs. She drew her head down against her body, fluffed her feathers for warmth, squinted in patient misery. She waited. She didn't know it, nor did anyone else, but she was the only dodo on Earth. When the storm passed, she never opened her eyes. This is extinction. (Quammen, 1996).

Other Endangered Animals in Bhutan

Think about the animals where you live. Bhutan is home to many rare plants and animals. Endangered mammals include the tiger, the golden langur, the Himalayan musk deer, the clouded leopard, and the takin. Many of these species are at risk because of poaching and loss of habitat. Let's take a look:

~ **Tiger *Panthera tigris*** Tigers are called the "jewel of the forest" or "king of the forest" in Bhutan. They are protected by law, and are highly revered by many Bhutanese people. They live in forests above 4,000 meters and tend to avoid human settlements. There is no record of any tigers eating humans in Bhutan. These animals are facing many threats, including destruction of their habitat--and extinction. Some herders will kill them for attacking livestock but they are also poached for their skins and their body parts. Some people believe that tiger parts are appropriate for medicine, but many traditional medicine practitioners in China and the Himalayas are now saying that if "medicine" puts the world out of balance through causing the deaths of rare species, then it will not work as medicine, actually endangering those who use it.





~ **Golden Langur *Trachypithecus geei*** You are very lucky if you catch a glimpse of the golden langur. There has been no crop raiding by langurs, unlike some of the other monkeys that live in Bhutan. Langurs are found only in forests in central Bhutan. They are impaired by construction of roads, power transmission lines and logging routes.

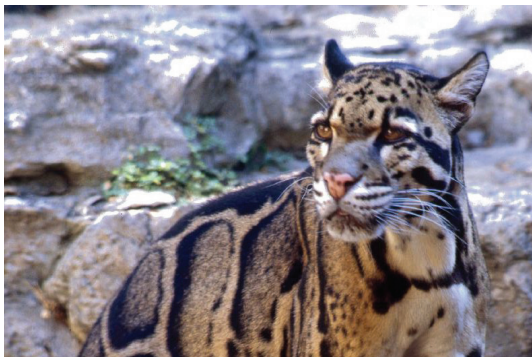
~ **Himalayan Musk Deer *Moschus chrysogaster*** Instead of having antlers, these little deer have protruding

teeth like tusks. You may see them in forests and scrubs between 2,800 and 3,500 meters. They also have glands or “musk pods” that contain a secretion prized for perfume and traditional medicine. They are found in 13 countries, including Bhutan, but are highly endangered. Musk deer are protected by law in Bhutan, and indeed all around Asia it is illegal to trade musk. They are very shy and tend to stay away from human settlements.



~ **Clouded Leopard *Neofelis nebulosa***

One of the most elusive creatures in Bhutan, the clouded leopard is rarely seen or photographed. It travels at night, and tends to ambush its prey from trees, which has led to the nickname “bandar bagh”, or “monkey tiger”. The clouded leopard is said to chuckle when pleased or excited, and growl when annoyed. It is found in dense forests up to an elevation of 3,000 meters. Clouded leopard are threatened by habitat destruction and poaching, both for their decorative pelts and their bones for traditional medicine.



~ **Takin *Budorcas taxicolor***

One day, it is said, a Tibetan holy man called Drukpa Kinley, was asked to make a miracle happen. He agreed that he would, but only if the people brought him a whole goat and a whole cow for his lunch. The story is that he ate both animals, then took the skull of the goat and fixed it to the skeleton of the cow. The people were amazed to see the strange creature come alive, and spring up toward the high meadows to graze. They called it the “takín” and it became the National Animal of Bhutan.

However, even though the takin is our national animal, few people get to see one, except in the zoo. These animals migrate in large herds from high alpine regions in summer to lowland broadleaf forests in the winter. Competition with livestock for foraging is a key threat, along with habitat destruction from development. The takin is highly protected by the laws in Bhutan. What would it be like if you never saw these animals again?



EXERCISE: LET'S CHECK THE FACTS

Now take all that you've learned and tick the correct answers:

1. Snow leopards can be found in which continent?

- Australia
- The Americas
- Africa
- Asia

2. In Bhutan, snow leopards prey on:

- Zebras
- Blue Sheep
- Camels
- Llamas

3. The color of the snow leopard is:

- Orange with black stripes
- Grey
- Black
- Smoke gray with dark grey open rosettes

4. The snow leopard is found in:

- Tropical Forests
- Deserts
- Mountains
- By the Ocean

5. One of the adaptations the snow leopard has for its mountain life is:

- Long neck
- Long fur with wooly undergrowth
- Short, thin tail
- Short, thin fur

MATCH THE PHOTOS TO THE DEFINITIONS:

Livestock Preyed Upon



Scrape



Pugmark



Snow Leopard



Blue Sheep



Scat



Chapter 4. Taking Care of the Snow Leopard

Harm to Snow Leopards

The unfortunate truth is that even though Buddhist teachings tell us that all sentient beings have Buddha Nature, the main threats to snow leopards are human beings. Our activities include poaching, killing snow leopards that attack livestock (called “retribution” killings), habitat loss, and lack of awareness. Bhutan’s Forest and Nature Conservation Act of 1995 protects snow leopards, but problems still exist.



Poaching: Not only are snow leopard pelts prized for coats and other garments, some people, especially in China, use their bones and other body parts for traditional Asian medicine. Snow leopard bones are often used as a substitute for tiger bones. Some people believe these bones can cure joint and back pain, but there is no scientific proof. Indeed many traditional medicine practitioners are now saying that using these bones can be dangerous to humans. It causes so much disruption in the

external world to destroy species, that it will also cause disruption to the internal world.

There is a story about the 11th century saint, Milarepa, encountering a hunter in the mountains. It is called “The Song of the Hunter” and it begins when Milarepa saw a hunting dog chasing a deer. Both were running toward him, and the deer looked terrified.

“There must be a very sinful person following these two animals,” the saint thought. “He will probably be here any moment.” He indicated to the animals that they settle beside him. A few minutes later a man appeared. His eyes glared with a look of violence, his hair was knotted on the top of his head, and his long sleeves flapped from side to side as he ran toward the holy man. In one hand he held a bow and arrow, in the other a long lasso for catching game. As the man ran up, Milarepa could hear his breath coming in gasps. A stream of sweat poured down the hunter’s face.

When he saw the holy man with the dog and the deer lying beside him like a mother with her sons, he thought the animals had been bewitched.

“You fat, greasy yogi!” he cried angrily. “I see you here, there and everywhere. It does not matter if one or two like you die. You may have the power of keeping my bitch and my deer, but now see whether your clothes can also keep out my arrow.”

With that, the hunter drew his bow, aimed the arrow at Milarepa, and shot. But the arrow went high and missed.

“You need not hurry to shoot me,” Milarepa said, calmly. “You will have plenty of time to do so later. Take your time and listen to my song. In his song, he asked the hunter to kill the passions within, rather than kill sentient beings without. When the hunter said: “if I don’t hunt then my family have nothing to eat,” Milarepa showed him how he could eat roots and leaves and nettles. He invited the hunter to remain with him and practice the dharma. The hunter put down his bow and repented of his sin. He stayed with Milarepa until he had obtained liberation.

Conflicts with herders: When a herder loses a yak or goat, it can be a huge economic hardship. When the snow leopard is responsible, herders sometimes set traps or poison, or deliberately shoot snow leopards. These practices are the biggest threat to snow leopard populations in Bhutan. Right now, the snow leopard is viewed more favorably in Bhutan than other predators such as the wild dog. They are also seen as sacred, so this helps pacify villagers when livestock kills happen.

A few years ago a young sherpa in Nepal drowned three snow leopard cubs in the river, in revenge for some cattle that had been killed by adult snow leopards.

“From that night onward the mother snow leopard started crying from the mountain for her cubs, and my cattle were crying for the loss of their calves. I realized how big a sin I had committed and promised myself that I would never do such a thing in the future,” Himali Chungda Sherpa told a reporter from the French news agency AFP.

In 2008 he joined with other people living in villages around the base of Mt. Kangchenjunga to create an insurance plan for livestock. The plan deters herders from killing snow leopards that attack their animals.

Under the scheme, herders pay into a central fund for each of their yaks. If any animal is killed by snow leopards its owner then receives a compensation payment of 2,500 rupees. The community members monitor this plan and verify the kills.

Himali Chungda Sherpa now campaigns to persuade farmers that killing snow leopards is not only wrong but also that protecting the snow leopard is vital to boosting the economy in an area which gets just a few hundred trekkers a year.

“If a tourist sees a snow leopard and takes a picture of it, there will be publicity of our region and more tourists will come,” he said.

Loss of habitat and scarcity of snow leopard prey: With populations increasing, and competition over land, herders are moving further toward the mountains with their livestock. Over time, herding means there is less grazing for wild sheep and goats, which are the natural prey of snow leopards. People also hunt these goats and sheep, which creates even more conflict with herders because snow leopards will more likely kill domestic livestock when their natural food source is scarce.

Lack of awareness, policy and enforcement: One of our biggest challenges in Bhutan is maintaining the balance between providing income and food for our families today, and protecting Bhutan’s landscapes and species for future generations. If people do not know about snow leopards they will not remember to protect them. If snow leopards are to survive, then local people have to be fully engaged in helping them.

How to Help

We can do many things to help snow leopards. Perhaps your school or community or monastery can take part in some way, too:

- **Chant for Snow Leopards.** In your daily practice chant for snow leopards and the health of the mountains.
- **Corridors.** Snow leopards need to be able to travel and migrate safely from place to place. These routes are called “corridors”. Twelve such corridors were set aside for protection in Bhutan in 1999. If you have a corridor near you, learn about it and make sure that your family and fellow students or monks respect this.
- **Patrolling.** Report the killing and harm of snow leopards to proper officials.
- **Fines.** The first-time offense for killing a snow leopard in non-protected areas in Bhutan is 50,000 ngultrums, and up to 2 lakhs in protected areas.
- **Fencing for livestock.** With fencing, there are many ways to protect livestock from predation by snow leopards.
- **Education.** Help community members understand the harm caused by poaching, retribution killing and animal trade.



- **Observing for Science.** Scientists need information about snow leopards. Wildlife managers are always grateful for reports from local people about their snow leopard sightings. Here’s the kind of information that really helps:



Villagers can become involved in camera trapping, a way to observe and study snow leopards without even touching them!

Observing For Science. . . What Scientists Do . . .

Many organizations study and protect snow leopards. These include Bhutan's Ministry of Agriculture, the Bhutan Foundation, World Wildlife Fund, the Snow Leopard Trust, the Snow Leopard Conservancy, the Snow Leopard Network, and Panthera.

Scientists are very curious when they observe snow leopards in the wild. They ask:

- Is the snow leopard killing prey? What are they killing?
- Is the snow leopard under attack by a predator?
- What time of day and year is it and where are we?
- Do we see any Sign (scat, prints or scrapings)?
- Is the snow leopard alone? Running? Lying down?
- Go to the next activity to give snow leopard observation a try.

EXERCISE: RANGER IN ROBES--YOUR ROLE AS A SNOW LEOPARD CARETAKER

1. First, think about what kind of information you will need to collect. Earlier, you learned about different kinds of sign: scrapings, tracks, scat, and so on. Start your list:
2. Next, write down all of the tools you think you would need to have on hand to observe snow leopard in its habitat.

3. Compare your list with the snow leopard observation sheet at the end of this booklet to see what information scientists collect and the tools they use when they study snow leopards. How did you do? What would happen to the rest of the **ecosystem** if the snow leopard disappeared? What would change?



Chapter 5. Protecting Your Own Environment

“Compassion is central to environmental protection because it moves us to act to cherish and take care of others. Caring for the environment is an important way to care for all the beings that depend on it for their existence... We need compassion because it connects us personally to the issue, and sustains us over the long haul.”

His Holiness the Karmapa

Can you think about ways to protect the environment around your monastery and your community? What are you already doing? How could you improve? Why would you do this?

What kinds of things can we do to show compassion for our environment? These ideas might get you started:

1. Conserve water from a dripping pipe, and capture rain water for bathing
2. Learn about how to harness solar energy for heating the monastery
3. Start a garden for vegetables and flowers
4. Is there an area of the school or monastery ground that you can use to grow tree seedlings? Can tree seedlings be given away?
5. Initiate a recycling or composting program in your community
6. Host a discussion in your village on a troubling environmental issue
7. Organize a species festival in your community or monastery to celebrate the snow leopard, or cypress trees, or the white-bellied heron, so many treasured species!
8. Create beautiful art projects for your monastery that celebrate nature
9. Celebrate everything you are doing. Have a “Compassion for Nature” day and make sure everyone in the community is encouraged to join in.
10. What inspiration can you add to this list?

Buddha taught people to live simply and appreciate the natural cycle of life. Craving and greed only bring unhappiness. Desire for material possessions can never be satisfied and people will always want more. The demand for more resources inevitably threatens the environment. This is why the real solution to the environmental crisis begins with you, the individual. It begins with each one of us.

Buddhists in Japan tell a story that the Buddha once received a donation of 500 new robes for his followers. So he considered what to do with the old ones and decided they would be used for bedsheets. But what was he going to do with the old bedsheets? He asked his followers to start using them as towels. And the old towels were used as cleaning rags. Everything should be used and reused, the Buddha said.

Now, write a thoughtful letter to yourself with observations of Nature protection and how you can add to positive actions using your Buddhist practice. Of course, you already know that all of your actions are connected to the well-being of the snow leopard and, to all sentient beings.



GLOSSARY

Camouflage – To deceive or disguise from surroundings

Claw Raking - Scratch marks are left when a snow leopard claws on tree trunks or rock faces

Ecosystem - A community of living organisms (plants, animals) in conjunction with the nonliving components of their environment (air, water, soil), interacting together.

Extinction – When organisms completely die off and there is no more of its kind on earth

Food web - A network of feeding relationships in which energy and nutrients are passed on from one species of living organisms to another.

Habitat – Specific environment that is a home for a specific plant and animal

Herbivore – Animals that eat only vegetation

Predator – An organism that lives by killing and consuming another living organism

Prey – Living organisms that predators feed on

Pugmark - Footprint of animals

Range - Area where an animal spends its time; it is the region that contains all the resources the animal requires to survive and reproduce.

Rare Species – Group of animals that are uncommon and few in number

Scat – Snow leopard feces

Scrapes – These scratch marks are left by clawing on tree trunks or rock faces

Scientific Name – The specific name given to a species, composed of two parts: genus and species. The name is used by scientists

Sign – An object, quality or event whose presence or occurrence indicates the presence or occurrence of something else

Territory – An area defended by an animal against others usually of the same species or sex

Observation Basics

Basic Snow Leopard Observation Tools

- Your eyes, ears and nose!
- Journal and pencil
- Topographic maps and compass
- Camera
- Binoculars
- Measuring tape
- Marking labels, envelopes and plastic bags for collecting scat and other signs (scat, hair, etc.)
- Thermometer
- Jackknife
- For you: Small first aid kit, water bottle, sitting tarp



SNOW LEOPARD SLEUTH

Your goal is to confirm these things:

1. Is there a snow leopard in the area?
2. Is it breeding, with young nearby?
3. Is there livestock predation in the area?

With this in mind, the datasheet is divided into three parts, because of the way you will make your observations:

Indirect observation. Sorry to say, you probably won't see a snow leopard, but be on the lookout for the sign we studied in Chapter 2. Collect a small amount of what you see, even if you are not sure. Label and store it until you meet with the scientist.

Direct sighting. These are rare, but do happen more frequently for herders and others who move about in the habitat. If you see one, note if the snow leopard is a solitary adult, or if they are accompanied by cubs and young. Also record it's behavior (see sheet for ideas)

Livestock depredation. Information on the presence of a kill is useful, whether livestock or wild prey like blue sheep. This helps managers know where current conflicts with herders lie.

To properly fill out the datasheet, here are some observations you can make:

- Location: Where were you when you say the snow leopard? Be as specific as you can.
- What is the land cover where you saw the snow leopard? Here are some choices: AM=Alpine meadow, SC=Scree, CL=Cliff, FO=Forest, SH=Shrub
- What day, and time of day was the sighting? What was the weather like?
- Did you see any sign? (Scrape, Scent, Track, Age of Sign, Scat, Hair, Claw Rakings)

SNOW LEOPARD OBSERVATION SHEET

Observer: _____ Date: _____
 Locality: _____ Dzongkhag: _____

Indirect observation (sign)

Identifier	Location			Sign			Sign age				Land Cover				
	Latitude	Longitude	Elevation	Scrape	Scat	Scent	Track	<1 day	<1 mo	>1 mo	SC	AM	SH	FO	CL

B. Direct observation (sighting)

Coordinates and Elevation				Animal Sighted			Was Prey Killed?				Dominant Land Cover			
#	Latitude	Longitude	Elevation	Adult	Cub	Other	BS	YAK	Other	SC	AM	SH	FO	CL

C. Livestock Killed

Coordinates and Elevation				What Was Killed?			Dominant Land Cover				
#	Latitude	Longitude	Elevation	BS	YAK	Other	SC	AM	SH	FO	CL

BS= Blue Sheep SC = Scrub AM=Alpine Meadow SH= Shrub FO=Forrest CL= Cliff

APPENDIX A. TEACHER NOTES

Chapter 1

- Monk Nima is from the Thedtsho Gewog of Bhutan’s Wangdiphodrang District. In 1992 at the age of 12, he joined Dechenphodrang Monastery where he studied for 11 years. In 2003, Nima relocated to Tashichodzong, where he resides today.
- This story tells us that all beings are connected even if they assume other bodies. What does this mean? Why is compassion toward sentient beings so important? Create some dialogue with your class on the sanctity of all sentient beings.
- Ask Students: Why do you think story telling is so powerful? What do you think about snow leopards after you hear these stories? Go deeper with [Activity 1 in Appendix C](#), “Word Web”.

Chapter 2

- Refer to [Activity 2 in Appendix C](#), “Where Are the Snow Leopards?”
- Make the point that not only is the snow leopard naturally rare, it is also listed as an endangered species. Use this moment to talk about extinction and the spiritual ramifications of the loss of an entire precious species.
- See [Activity 3 in Appendix C](#), “Pin the Snow Leopard’s Tail” for more exploration on the unique physical features of snow leopards.
- Snow leopards get hungry just like us. Even though it is the nature of the snow leopard to kill its prey, it still has Buddha nature. How can we kill animals that practice their known nature (preying on livestock) when we know that they also have Buddha nature? Initiate a debate on eating meat and the hunting of animals for survival.

Chapter 3

- Why it Matters: Some animals have become successful because of their ability to move and adapt to changes. To avoid extinction, many organisms benefit from living in groups. For example:
 - By forming a “V”, geese can reduce the amount of energy needed to migrate. They take turns at being the lead bird.
 - A flock of sand grouse stays together to confuse an eagle or falcon.
- How do Buddhists feel about extinction? This might be a great opportunity to explore the deep wound that extinction causes.
- Ask your students to think about where their food originates and how it eventually comes to them. Remind students that interactions can be simple, such as a plant needing sun, soil and water to live; or more complex such as an insect eating the leaf of a plant, a spider eating the insect, a sparrow eating the spider, a hawk eating the sparrow, the hawk dies and is eaten by a vulture, the vulture dies and is eaten by bacteria.

- Have students explore the idea of how all of our food is connected, and how losing one part of the “[food web](#)” can lead to massive extinction. [Activity 4 in Appendix C](#), “Interconnectedness of All Species and Elements On Earth,” is a good activity to try with them.
- Encourage students to research what other kinds of animals live in Bhutan.
- Most students will never have seen a snow leopard in the wild. But if there are any who have, ask them to tell the rest of the class about it, and then for everyone to write up the report and send it to the Wildlife Conservation Division of Bhutan’s Ministry of Agriculture, or the Snow Leopard Trust.
- Answers to the Exercise: 1. Asia; 2. Blue Sheep; 3. Smoke gray with dark grey open rosettes; 4. Mountains; 5. Long fur with wooly undergrowth

Chapter 4

- What is Gross National Happiness? Isn’t happiness about practicing compassion and forgoing greed? GNH was coined by his Majesty the Fourth King Jigme Singye Wangchuck in 1972. Based on Buddhist beliefs, GNH says that material and spiritual development must occur side by side. There are four pillars of GNH:
 - sustainable development
 - preservation of cultural values
 - conservation of the environment
 - good governance
- Think about initiating a debate on the best method to balance these four pillars.
- Discuss fines in Bhutan and other countries and how they differ
- Refer to [Activity 5 in Appendix C](#), “It Takes All Kinds of People”, for an engaging role play that brings all stakeholders together for discussion and problem solving!
- If you or students are interested, you can find more information about these organizations in Appendix B.

Observation Basics

- You and your students live in rare and isolated habitats and could find yourselves in a situation where you will have the opportunity to actually observe a snow leopard in the wild. If you are not that lucky, you will might still notice sign that a snow leopard was there.
- “Citizen science” approaches to gathering ecological data have big potential. Scientists are interested in training villagers and monks to help collect snow leopard data in their remote settings. Scientists then use this valuable information to paint a better picture of snow leopard extent and behavior. Help your students think about how they and your monastery can help.

APPENDIX B. CONTACTS

Several government agencies, organizations and scientists in Bhutan are involved in snow leopard research and protection. If you or your students have questions about an observation you made in the field, or want to know more about snow leopard management and laws in your area, contact any one of these groups or individuals.

- Wildlife Conservation Division (WCD), Ministry of Agriculture is one of the six divisions of the Department of Forest and Park Services. It was established in 1992 to plan conservation programs for Bhutan. <http://dofps.gov.bt/ncd/>.
 - a. Sonam Wangchuk is the Chief Forestry Officer of the WCD. He oversees its management and administration of WCD. Phone: +97517114822. sonamwangchuck@gmail.com.
 - b. Lhundup Tharchen is the head of WCD's Big Cats Program. He coordinates WCD's Carnivore Conservation Program. lhenduptharchen@gmail.com. Phone: +97517637779.
 - c. Dr. Sonam Wangyel Wang, Director of Royal Education Council. wangsonam@gmail.com Phone: +97517111009. Dr. Wang was the previous Chief Forestry Officer of WCD and also served as a park manager of the Jigme Singye Wangchuck National Park (JSWNP).
 - d. Phuntsho Thinley is Manager of Jigme Dorji National Park. pt96@cornell.edu Phone: +97517820588.
 - e. Phub Tshering is a MOA Ranger who captured the first footage of a snow leopard in the Jigme Dorji National Park. Phone: +97517665556.
- Ugyen Wangchuck Institute for Conservation and Environment (UWICE) is a research and training institute, working to assure better policies and protection of Bhutan's natural resources. <http://www.uwice.gov.bt>. Phone: +975 (0)3 631926/631924, Fax: +975 (0)3 631925, Email: info@uwice.gov.bt. Ngawang Norbu is the Director of UWICE. norbu.nawang@gmail.com. Phone: +97517115977. Another contact: Tiger Sangay, tagsangay@gmail.com. Phone: +97517118589
- Royal Society for Protection of Nature (RSPN) is a non-profit environment organization founded in 1987 to support environmental conservation in Bhutan. <http://www.rspnbhutan.org>.
- World Wildlife Fund's (WWF) conservation efforts in Bhutan trace back to the 1970s when it first began assisting the Royal Government. It now helps with research, education and awareness, human/wildlife conflict initiatives, and eco-tourism. <http://www.wwfbhutan.org/>
- The Bhutan Foundation was established in the United States to support organizations in Bhutan conserve the natural environment, develop wisely with good governance, and the promote culture and art. <http://bhutanfound.org>. Tshewang Wangchuk, PhD, directs the Foundation in Washington D.C. tshewang.wangchuk@bhutanfound.org Phone: +97517114161.

APPENDIX C . TEACHING ACTIVITIES

By permission, these teaching activities have been modified for enjoyment by you and your students as you discover more about snow leopards, their habitat, and their relation to other species.

ACTIVITY 1: WORD WEB

OBJECTIVE: Word Web helps students collect thoughts for an essay or debate or to solve a problem. It is a good icebreaker.

TIME: Two sessions of 40 minutes each

GROUP SIZE: Any number (Session 1); Small groups of three or four (Session 2)

MATERIALS: Blackboard and chalk (Session 1); One blank sheet of paper and pencils per group (Session 2)

METHODS:

Session 1 – Write one word, for example “Snow Leopard”, in the center of the blackboard and ask students to suggest words that come to mind when they think of snow leopard. Write all these words like rays around the sun. Help students classify the information into categories (like animal behavior, geography, appearance, perceptions, etc.) and then ask them to expand and explain each point. Write a group essay or speech about snow leopard based on this exercise.

Session 2 – Distribute blank paper, one sheet per group, and suggest other words for the students to create a word web around. The key word could be the name of a bird, mammal, place, village, monastery, and so on. Ask students to create word webs, then classify ideas in a logical sequence. After all groups have finished, have students present their ideas in a speech or group essay.

(from Ri Gyancha – A Biodiversity Resource Kit for Educators in Ladakh. Sujatha Padmanabhan and Yashodara Kundaji. 2010.)

ACTIVITY 2: WHERE ARE THE SNOW LEOPARDS?



OBJECTIVE: This exercise will help students become familiar with snow leopard range and identify the countries they inhabit.

TIME: 40-60 minutes

GROUP SIZE: Individual or groups

MATERIALS: Copies of map and an atlas.

Can you name the 12 countries where snow leopards live?

WARM UP: Photocopy enough worksheets for each pair of students. Find out what students know about where snow leopards live: continent (Asia), countries (Bhutan, Nepal, India, Pakistan, Afghanistan, Tajikistan, Kyrgyzstan, Uzbekistan, Kazakhstan, Russia, Mongolia, China), kind of habitat (mountains). Explain to them that they will be learning about the countries with snow leopard habitat and that they will be using atlases.

METHOD: Hand out the worksheet and see if the students can identify any of the snow leopard countries. Then hand out an atlas for students to check: Bhutan, Nepal, India, Pakistan, Afghanistan, Tajikistan, Kyrgyzstan, Uzbekistan, Kazakhstan, Russia, Mongolia and China.

DISCUSSION: Snow leopard range often runs along borders, because borders between countries often run along mountain ranges. Discuss why it is difficult to protect an animal whose range is so spread out across different countries. Some of the reasons are:

- Cross-border trade of snow leopard parts such as hides and bones
- Different cultural and religious influences: Kyrgyz Republic and Pakistan have strong hunting traditions; Tibet and Mongolia are Buddhist, so less hunting.
- Different laws in different countries.
- Research, monitoring and wildlife management is very difficult when wildlife populations cross international borders. In much of its range, snow leopard home ranges cover very large areas and include more than one country.
- Borders often run along mountain ranges.
- Different languages make it difficult to collaborate on trans-boundary conservation efforts

What could conservation organizations do to overcome the difficulties?

- Work with the sangha and spiritual leaders to build better communications in and among communities and countries.
- Slowly, trans-boundary protected areas are being established (for example between Pakistan and China; between Mongolia, Kazakhstan and Russia; between Kyrgyzstan, Kazakhstan and Uzbekistan). These present huge challenges.
- Convention on International Trade in Endangered Species (CITES) prohibits trade of any endangered species. Most snow leopard countries are members of CITES but trade still takes place illegally. Governments need to become more aware of the issues so they support anti-trade initiatives.
- Develop small, local conservation incentive programs at grassroots level in several countries.
- Encourage linkages and exchanges between communities in different parts of snow leopard range.

(from International Snow Leopard Trust)

ACTIVITY 3: PIN THE SNOW LEOPARD'S TAIL

OBJECTIVE: For younger monks, to highlight the functions of the snow leopard's tail.

TIME: 40 minutes

GROUP SIZE: Individual

MATERIALS: Snow leopard poster, leopard's tail, a scarf or blindfold

PRIOR PREPARATION: Cut out the tail section of the poster. A tail could also be made using old cloth or wool.

METHOD: Stick the poster of the tail-less snow leopard against a suitable background where it is clearly visible to all children. Ensure that it is at a height where the children can reach it easily. Tell them that the snow leopard has lost its tail and needs to find it for warmth and balance. The children have to help get the tail back, but they have to do it blindfolded.

Blindfold the children turn by turn. You can disorient them a little by turning them around a couple of times after they have been blindfolded. Each child walks up to the picture with the tail in hand and, by guesswork, tries to stick the tail on the body of the snow leopard. Every child gets only once chance. The game evokes a lot of laughter especially if a child gets wildly off the mark.

DISCUSSION: Talk about the snow leopard and its characteristics. Explain how the snow leopard is well adapted to high altitudes and cold deserts. Highlight the use of the tail. You can tell a lot about how snow leopards live just by looking at them. From their noses to their thick, furry tails, snow leopards are well adapted for their cold, rugged mountain environment.

(from: Ri Gyancha – A Biodiversity Resource Kit for Educators in Ladakh. Sujatha Padmanabhan and Yashodara Kundaji. 2010.)

ACTIVITY 4: INTERCONNECTEDNESS OF ALL THINGS ON EARTH

OBJECTIVE: For students to realize that elements and species on earth are all interconnected.

TIME: 40 minutes

GROUP SIZE: Any number

MATERIALS: Cardboard, colored pencils, a hole punch and a roll of string or wool.

WARM UP: Make a “web of life” card for each student. Cut out same-size small squares of cardboard. On each card, draw and label an element or species of the environment. These should include sun, air, water, human, grass, snow leopard, blue sheep, etc. Punch holes through the cards and thread string through each so that they can be hung around each student’s neck. You need to have a substantial roll of string or wool left over. Students can help with this exercise as a fun art project.

METHOD: Ask the students to sit in a circle. Explain that they collectively represent the Earth. Give each student one card from the web of life cards to wear around his/her neck. Make sure that the sun is represented. Ask them to pretend to be what their card shows. Give them a minute to act it out.

Begin the game with the sun because it is the primary source of all energy on Earth. Wind some string around the index finger of the student who is the sun and ask him/her to point to an obvious connection in the web of life circle. The student has to explain the connection. For example, grass--the student must say that sunlight is essential for plants to grow. Then, extend the string to the student who represents grass and lightly tie the string around his/her finger. The grass will now point to something, which has a connection, for example, blue sheep. Again the student should explain the connection.

Continue making connections until all the students become part of this web. Hold the remaining ball of string. Ask the students to raise their hands to above chest level, holding up their fingers very carefully to not disturb the web. Point out how tightly the web has been woven. This web represents relationships among different part of an **ecosystem**.

Explain that a healthy **ecosystem** has the ability to bounce back to normalcy even after some damage. Demonstrate this by pressing the web with your hand. It will easily bounce back. But if any one link in the web is disturbed, the **ecosystem** will be imbalanced. If many links are damaged the web cannot bounce back. For example, if blue sheep is taken by poachers, ask the student representing blue sheep to let go of the string. Notice how the string becomes slack. Next, the snow leopard, the direct link with blue sheep, is also affected and lets go of the string. Gradually the web falls apart completely and the **ecosystem** is unable to rejuvenate itself. Emphasize this point.

If you have time, suggest that each student then writes another element of the environment on the other side of the cardboard, with someone else representing the sun. See how different the web is once the students know how to play the game.

DISCUSSION: Ask students what they have learned from this game. Discuss how the second round was different from the first. After they share their ideas, point out that the game illustrates that each and every thing on Earth is directly or indirectly connected to other things. If one species becomes extinct, others are affected too.

(from Ri Gyancha – A Biodiversity Resource Kit for Educators in Ladakh. Sujatha Padmanabhan and Yashodara Kundaji. 2010.)

ACTIVITY 5. IT TAKES ALL KINDS OF PEOPLE

OBJECTIVE: Students learn the different ways people interact about snow leopards. They will understand that groups with different perspectives require unique conservation solutions. Students will also learn how to balance human and wildlife needs, recognizing that poverty intensifies human-wildlife conflicts. They examine the role of government, conservation groups, the sangha, and individuals in conservation efforts.

TIME: 2 sessions, 1-2 hours each

GROUP SIZE: 25-30 students, working together

MATERIALS: Handouts of *Town Hall Scenario*, *Rugged Realities* (one per student) and *It Takes All Kinds of People* (one per group), found at the end of this activity; One sheet of blank paper per group for group name/identity sign.


METHOD: Tell students that they are about to learn more about the many people who interact with snow leopards. Ask them what the word “conservation” means to them. Review that conservation is the management and care of all species, natural resources and cultural traditions in the face of sustainable economic growth. Explain that they are going to imagine they are part of a small village community meeting in Bhutan, where they will each represent different groups whose lives are affected by snow leopards. A community meeting is a forum where citizens can voice their opinions. Give students background information about the people who will be represented at the meetings using the “interest groups” list below. Have the students read the *Rugged Realities* either out loud or on their own

Read the *Town Hall Scenario* handout out loud. Check that everyone has understood it. Afterwards, divide the class into equal groups, each connected to or affected by snow leopard conservation. Using the help sheet below, review the viewpoints of the different groups so that students are clear about who will participate in the meeting.

Distribute the worksheet *It Takes All Kinds of People* to each group. Ask each group to 1) answer the assigned questions about snow leopard conservation, then, 2) choose one representative to be the recorder for the handout. Group members must act out their identity during the meeting. When they have statements to make, they can begin by saying, for example, “as a herder...”. Each person is required to speak at least once during the group presentation.

Explain to the groups that the next session is about presenting the information they prepare. To start this session ask each group to write their group name on a sheet of paper, folded like a tent, on one of its member’s desks. Explain that conflicts will arise because different groups have different needs and relationships with the snow leopard. Lay down ground rules to ensure that students are respectful of each other. One rule might be that no one is allowed to talk while someone is presenting.

Assign each group three minutes to present their concerns and perspectives to the class. They will describe, in character, who they are (using accents and gestures and phrases) and how their lives are connected to the survival of snow leopards. They will then give recommendations about how the protected area should be used. As groups share their answers to the questions from the handout, record their answers on the board where everyone can see. After each group presents, allow other groups to ask them questions about opinions and ideas expressed. After every group has presented, ask the students to consider whether their group’s goals are similar or complementary to any other group’s goals. Do they want to form alliances with any other



groups? Allow 10 minutes for groups to meet with each other, form alliances and revise their recommendations according to these alliances.

After all the groups have revised their recommendations to accommodate the needs of at least one other group, ask each alliance to share recommendations. Ask students to take notes, and then vote on the final recommendations to see which are the most popular. Tell them these will be the final rules related to the protected areas because they were created by and for people who interact with snow leopards. After some time, stop the process and begin a discussion using the following questions.

DISCUSSION:

- Name the different groups affected by snow leopards in some way. In what way is each group connected to snow leopards?
- Why is achieving consensus a difficult process?
- Does snow leopard conservation conflict with any group's needs? How?
- Was it difficult for some groups to form alliances with others? Why?
- How could you have persuaded other groups to join you?
- Did any group feel its perspective and needs were not incorporated into the final recommendations and rules?
- Did all groups or individuals within a group feel that their voices were heard equally?
- What difficulties would you face if you wanted to manage natural resources, such as wildlife, where you live?

RUGGED REALITIES

The 12 countries where snow leopards can be found are: Afghanistan, Bhutan, China, India, Kazakhstan, Kyrgyzstan, Mongolia, Nepal, Pakistan, Russia, Tajikistan and Uzbekistan. Life is not easy for either people or snow leopards in the high mountains of central Asia. Many people who live alongside snow leopards are nomadic herders. This means they have herds of livestock, mostly sheep, cows and yaks, which they move throughout the year in search of grazing land. Herders typically live in tents, at least in the summers, where they live on higher ground, which is too cold and icy in the winter. In the mountains, grazing land can be scarce. Livestock herders make money by selling wool, milk and meat from their animals. Many of the people who live in the mountains of central Asia live in poverty. For example, people in Bhutan make about \$200 to \$400 a year on average. In India, the average annual income of people in the mountains is between \$378 and \$638.

Threats to Snow Leopards

Earning money as a nomadic herder is unpredictable, and a herder's income depends on the health of livestock animals. When winter weather is especially severe, livestock animals die. If livestock are diseased, a herder will lose money. Because people who herd in these regions make very little money, each animal is very important to them. Each animal is also important to them because many herders really care for their animals.

Snow leopards will sometimes attack and kill livestock. In some cases, the snow leopard's natural prey, wild sheep and goats, are not easily available because hunters have killed them for meat. In other cases, livestock animals overgraze the same grass on which wild sheep and goats rely, leaving less prey for snow leopards. When snow leopards attack domestic livestock, some herders retaliate by killing snow leopards.

While many people in these regions value the snow leopard, they are often able to earn more money from killing snow leopards than they could earn from protecting the animals. A poacher who kills snow leopards illegally can make as much as \$1,000 from the sale of snow leopard fur and body parts.

Snow leopards are an internationally-recognized endangered species. It is illegal to kill snow leopards anywhere in the world. In certain countries, there are also specific laws to protect them. In fact, it is illegal to hunt most of the large wild goats and sheep that are prey for snow leopards.

COMMUNITY MEETING SCENARIO

There is a protected area for snow leopards and their prey in the region where most of you live. Many activities are not allowed in this area, including building or construction, livestock grazing, and hunting. Some nomadic herders live in this protected area in the winter and they have lived there for generations. There has been a long history of grazing and hunting in the protected area because the boundaries of the area are unclear. A local conservation group concerned about the well being of the snow leopard and its prey has asked for a community meeting to make the rules for this area more clear. You have all come together to voice your opinions and make a group decision about how the land should be used in the future. The local conservation group hopes that any decision will take both human and animal needs into consideration.

GROUPS

- Nomadic herders
- Craftspeople (make crafts from wool)
- Wildlife Conservation Division, Ministry of Forests and Agriculture
- Tourism Council of Bhutan
- A Bhutanese snow leopard conservation foundation
- Bhutanese middle school students
- Wildlife hunters (some are actually poachers)
- Monks from the local monastery

NOMADIC HERDER (GROUP 1)

As nomadic herders, you depend heavily on the health of your yaks, cattle, goats and horses. Yaks give you your daily sustenance, since they give you meat, milk and wool. As nomads, you do not have one single home. You move periodically, trying to find land for your livestock and food for your family. Grazing land for your animals is important so that they have enough to eat. You try to sell raw wool to traders but your sales are very low. There are times when you have lost your livestock to snow leopards. This is very devastating to your livelihood. Some people in your group have become so upset by this that they have killed snow leopards, even though they risk fines, or worse, penalties since snow leopards are endangered. Poaching, or illegal hunting of snow leopards and their prey, is tempting to you because you can make money by selling their pelts and bones. Snow leopards are worth more than ever these days. Your main concern at this point is survival.

From your perspective, what are the advantages and disadvantages of the protected area?

ADVANTAGES	DISADVANTAGES

Who should be able to use the protected area and who should not? Why? Would you ever agree to prohibit livestock grazing in the protected area? If yes, what would you need to agree to this? What should happen to people who currently live in the protected area? Should hunting be allowed in protected areas? Why or why not? What, if anything, are you willing to do to help with the management and conservation of the protected area?

CRAFTS PEOPLE (GROUP 2)

As livestock herders who are also craftspeople, you have decided to sell high quality crafts such as beautiful rugs, mats and felt products at your local market and abroad. The wool for your crafts comes from sheep and yaks owned by your family. You have been guaranteed business by The Snow Leopard Trust, an international conservation organization, as long as you agree not to harm snow leopards or their prey species, especially blue sheep. You are motivated to keep the snow leopards safe since their survival is tied to your survival. With the money you make from your crafts, you can afford the high cost of food, medicine and school for your families. Life is not as much of a daily struggle for you now that there is a market for your handcrafted items. You know how to spin yarn and make wool and felt products that people from all over the world are interested in purchasing. Your community members have been asked to stop poaching snow leopards within the area where you live. If none are killed, then everyone will get a cash bonus at the end of the year. If anyone does kill a snow leopard, even if they are not a member of the your community, you still get paid for your products, but no one in the region will get the conservation bonus.

From your perspective, what are the advantages and disadvantages of the protected area?

ADVANTAGES	DISADVANTAGES

Who should be able to use the protected area and who should not? Why? Would you ever agree to prohibit livestock grazing in the protected area? If yes, what would you need to agree to this? What should happen to people who currently live in the protected area? Should hunting be allowed in protected areas? Why or why not? What, if anything, are you willing to do to help with the management and conservation of the protected area?

WILDLIFE CONSERVATION DIVISION (GROUP 3)

As part of the Ministry of Forests and Agriculture, one of your major goals is to oversee environmental and forestry programs. You prioritize plant and animal conservation, pollution control, and the monitoring of wildlife species in protected areas and national parks. You recommend government policies on areas needing protection and those that could be used for new economic development. You want to protect the places where wildlife live. However, some of the land in those areas could be used to build schools, businesses, and homes. It is challenging to decide how certain areas such as core wildlife zones should be designated. You have become very interested in the money that hunting and mining groups have offered your department if they are allowed to do business in the area. You could use those funds to pay for other environmental projects. International hunters would pay big money to hunt wild animals. Mining groups are also willing to pay large amounts to search for gold, copper and other minerals. These activities will probably have a negative impact on snow leopards and other wild species but would bring more money into the Ministry.

From your perspective, what are the advantages and disadvantages of the protected area?

ADVANTAGES	DISADVANTAGES

Who should be able to use the protected area and who should not? Why? Would you ever agree to prohibit livestock grazing in the protected area? If yes, what would you need to make you agree to this? What should happen to people who currently live in the protected area? Should hunting be allowed in protected areas? Why or why not? What, if anything, are you willing to do to help with the management and conservation of the protected area?

TOURISM COUNCIL OF BHUTAN (GROUP 4)

As part of the Tourism Council of Bhutan, you want tourists to leave with a very good impression of your country. You want people to appreciate Bhutan's culture, history, national symbols, geography and environmental resources. Specifically, you want people to leave with a positive perception of the beautiful wilderness, the peaceful and friendly nomadic people, and the rich history. You believe painting a picture of Bhutan in this manner will attract more visitors, which brings money to your country. Therefore, it is in your interest to make sure that nature and people live in harmony. You would like to have permission to put a tourist lodge in the protected area so that people can enjoy nature up close. You think this lodge will benefit the business and the country. You do not want the tourists to see domestic livestock when they come; instead you want them to see wildlife. You sometimes allow hunters to stay in your tourist lodges and sites. They bring large amounts of money to Bhutan. It would be great if they could hunt wildlife near the protected region.

From your perspective, what are the advantages and disadvantages of the protected area?

ADVANTAGES	DISADVANTAGES

Who should be able to use the protected area and who should not? Why? Would you ever agree to prohibit livestock grazing in the protected area? If yes, what would you need to agree to this? What should happen to people who currently live in the protected area? Should hunting be allowed in protected areas? Why or why not? What, if anything, are you willing to do to help with the management and conservation of the protected area?

WORLD WILDLIFE FUND – BHUTAN (GROUP 5)

As part of WWF-Bhutan, you are concerned with both snow leopards and humans. You want to develop solid relationships with the communities that inhabit the same environment as the snow leopard by involving the people living in these habitats in your conservation efforts. You also want to improve the quality of life for these people, because many of them are very poor.

You want the protected land to be a safe place for snow leopards to raise cubs and hunt wild prey, such as wild goats and blue sheep. You are concerned that too many livestock go in to the protected area and eat all of the grass, which leads to decreased numbers of wild prey for the snow leopard. If the livestock keep going in to the area, snow leopards will prey on the livestock. When that happens, herders sometimes kill the snow leopards. Other activities such as hunting also reduce numbers of snow leopards and their prey. This hunting is not regulated, meaning the numbers of wild sheep, goats and snow leopards are not reported and therefore you believe hunting should not happen in the protected area. You hope people will still be able to live in the area but there have to be more regulations about who can use the land.

From your perspective, what are the advantages and disadvantages of the protected area?

ADVANTAGES	DISADVANTAGES

Who should be able to use the protected area and who should not? Why? Would you ever agree to prohibit livestock grazing in the protected area? If yes, what would you need to make you agree to this? What should happen to people who currently live in the protected area? Should hunting be allowed in protected areas? Why or why not? What, if anything, are you willing to do to help with the management and conservation of the protected area?

BHUTANESE SCHOOL STUDENTS (GROUP 6)

As Bhutanese school students, you have been learning about conservation throughout the world, and about the attempts to maintain or improve biodiversity (the range of plants and animals) in each area. Your school won an award that gave your class an opportunity to visit one place that has an endangered species, to create a proposal to educate students around the world about this species and to support efforts to ensure the safety and livelihood of the species. Your class has been researching the snow leopard and you are amazed that you finally have the chance to visit the region where these important animals live. You have met nomadic herders that live in the mountains where snow leopards also live. While you know that the herders' livestock need to graze on available grass, you also know that overgrazing by livestock can make it difficult for snow leopards and their prey to find food. You are excited that you are able to attend a meeting that could potentially save many snow leopards. When you return to your school, you will create a campaign that educates students about what you have learned.

From your perspective, what are the advantages and disadvantages of the protected area?

ADVANTAGES	DISADVANTAGES

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WILDLIFE HUNTERS (GROUP 7)

You hunt all types of wildlife, including species that are illegal to kill. Catching snow leopards and their big prey, like wild goats, is a huge business that helps you survive. The money you make from poaching supports your family, though you risk expensive fines and jail time if you are caught. Catching just one snow leopard can provide you with income for one year. Because of their beautiful fur, snow leopard pelts are in high demand throughout Central Asia, China, Eastern Europe and Russia. Other buyers want these animals live to add to their private animals collections. You can also sell snow leopard bones for use in traditional medicines. Throughout your whole life, you have grown up knowing about the snow leopard. You know that the survival of snow leopards is important for the **ecosystem**, but your family's survival is more important. You often go in to the protected area yourself or pay herders to go there to set traps to catch snow leopards and other wildlife. Right now you have 200 traps set that your friends are watching for you.

From your perspective, what are the advantages and disadvantages of the protected area?

ADVANTAGES	DISADVANTAGES

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CENTRAL MONASTIC BODY (DRATSHANG) GROUP 8

As a monk in the village, you are representing the country’s Central Monastic Body. Bhutan is regarded as one of the Buddhist countries where Buddhism flourished uninterrupted. Buddhism plays a very important role in the ways of life of Bhutanese people from birth to death. Bhutan’s culture, customs, history and landscape emphasize the influence of this noble religion. Zhabdrung Ngawang Namgyel, the founder of Bhutan, instituted the Sangha in Bhutan in the 17th century. The present structure draws continuity from the one established by Zhabdrung. Due to their holy character and superior learning, the monk body commands great respect. The Bhutanese culture is very much embedded in the Buddhist teachings of respecting life and regarding the natural environment as sacred. It is taught to regard all sentient beings as Buddha, as they are all endowed with the Buddha nature. Therefore, the place where these sentient beings reside is considered a Buddha palace. One important principle teaching is that of interdependence arising. Everything is interconnected. Human beings are dependent on mind consciousness. We also are dependent on our planet earth as we are the dwellers.

So with such teachings in mind, what is your perspective, what are the advantages and disadvantages of the protected area?

ADVANTAGES	DISADVANTAGES

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(from: Engaging Students in Conservation: Protecting the Endangered Snow Leopard. An Interdisciplinary Curriculum Recommended for Grades 5-8. Snow Leopard Trust. 2009.)

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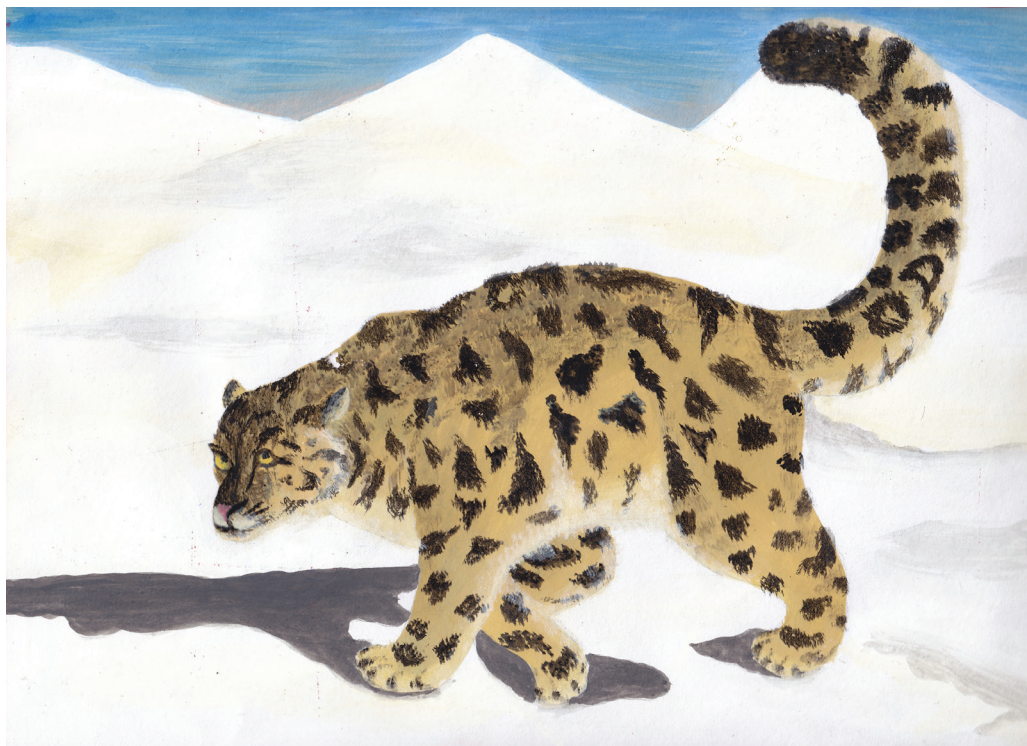
The Tributary Fund was founded in 2004 to engage communities in the protection of wildlife and habitat by connecting cultural traditions, religions and conservation science.

The project also benefited from partnership with The Alliance of Religions and Conservation (ARC) which helps the world's major religions develop their own environmental programs, based on their own core teachings, beliefs and practices. ARC was founded by HRH Prince Philip in 1995.

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