

# THE MYSTERIOUS *Irbis*

*In Mongolia locals refer to the snow leopard as 'Irbis'. Dr. Koustubh Sharma travelled with a team of international scientists to the frozen steppes as part of a project that seeks to understand this rare and beautiful animal. This is his story.*

"We need a long-term study on snow leopards." Sitting in an Oxford University lobby, trying to appear focused on checking my e-mails, I overheard a conversation between two stalwarts. The voice belonged to veteran wildlife scientist George Schaller, who was urging Tom McCarthy, the International Director of the Snow Leopard Trust, to chalk out a research project on the grey ghost of the mountains (see *Sanctuary* Vol. XII No. 5, September/October 1992). This was September 2007, and we were all attending the International Conference on Felids. Within weeks, Tom and I, with help from several scientists and colleagues, developed a proposal for the long-term ecological study on snow leopards. Dr. Schaller had triggered yet another initiative – one among the hundreds he has inspired.

## IN SEARCH OF THE SNOW LEOPARD

Distributed across 12 countries in Central Asia, the snow leopard has always intrigued researchers, photographers and filmmakers around the world. Despite the diligent work of several researchers, this cat's elusiveness and the difficult terrain it inhabits are part of the reason why large gaps still exist in our understanding of its natural history. Dr. Schaller focussed on the crux of the problem. He suggested that it is not the lack of quality scientific research, but the lack of long-term studies that limits our understanding of snow leopards. What we need is a study that extends beyond a Ph.D. or Master's degree, or a stand-alone population estimation exercise. Such long-term studies have been conducted by

Raghu Chundawat and Ullas Karanth on tigers in Panna and Nagarhole, by Craig Packer on African lions in Tanzania, and by Laurie Marker on cheetahs in Namibia.

As Regional Field Biologist with the Snow Leopard Trust, I was particularly excited to be part of this project. Our first goal was to select a site where red tape was minimal, and some preliminary information was already available. Most importantly, we needed a habitat with a healthy population of snow leopards to conduct at least 15 years of research. The Snow Leopard Trust has been running country programmes in India, Pakistan, China, Kyrgyzstan and Mongolia and we unanimously agreed on the South Gobi province in Mongolia as a model site.

After several field visits and analyses of the preliminary information, we zeroed in on the Tost mountains (literally meaning 'oily mountains'), to set up our base camp.

A unique habitat, with endless sheets of incredibly flat steppes studded with rugged mountains, Tost is part of the Altai range that spreads across Mongolia and China. The average elevation of this area is only about 2,000 m. above mean sea level, much lower than the elevation at which snow leopards occur in most of the other range countries. The temperatures here vary between – 35 to 35 °Celsius. Unlikely as it would seem, this region boasts some of the highest densities of snow leopards.



Appropriately named 'Bayartai' meaning "go with joy" in Mongolian, the 44 kg. snow leopard was radio-collared (top) as part of the long-term research project in the Tost mountains (facing page) in the Altai range in Mongolia. The region boasts some of the highest densities of snow leopards in the world. The name was given by researchers' when they captured the cat on the very day they were to leave the study area after a futile six-week search.

## LIFE IN THE MOUNTAINS

By tradition, Mongolians are nomadic. They live in *gers* (*yurts*), tent-like structures made of a wooden frame and covered by an insulating layer of thick wool felt. These *gers* are easy to transport and re-assemble. Predominantly dependent on livestock, Mongolians usually shift bases two or three times a year, mainly during the onset of the summer and winter months and occasionally in spring. And they move lock, stock and barrel – with families, possessions, livestock, dogs and even their homes (the *gers*)!

After several days of surveys and poring through toposheets and maps in the middle of the Gobi desert, we selected a valley, surrounded by mountains about 200 m. high on three sides, facing a wide seasonal stream in front, which

was again shielded by a wall of mountains about as high, as our base camp site. It was the first week of June, one of the warmest months of the year here and the mountains looked a desolate grey, *sans* the snow.

Acknowledging the intelligence of the locals, whose use of the *ger* over centuries had been dictated by resource availability and seasonal variations, we ourselves chose to erect three *gers* to serve as our base camp instead of raising a brick and mortar structure. Tom McCarthy (now Managing Director of Field Programmes, Snow Leopard Trust), S. Purevsuren (a Mongolian biologist working with the Snow Leopard Trust) and I, set up the base camp with some help from the locals. We succeeded in building a 'perfect' field station in the middle of the wilderness in less than two days.



DR. AMIT KOTIA

For three months, an international team of biologists, including the author, surveyed steep valleys and ridgelines and used remote-triggered digital cameras to estimate the population and identify activity hotspots. This helped them capture and fit the cats with radio collars and to extract blood samples for genetic studies. More than 260 pictures revealed at least four cats using an area of just 10 sq. km. around the base camp.

Ours being one of the most ambitious projects on snow leopards, we were well equipped with state-of-the-art digital infra-red cameras, high-tech computers, field gear, a Global Positioning System (GPS) and binoculars. This was to ensure that neither the quality nor the quantity of data was compromised in a long-term project such as ours.

Because our aim is to study the species with minimally invasive techniques, and considering the snow leopards' enormous home range and superb camouflage, which made them nearly invisible in the mountains, the most effective strategy for monitoring the cats is the use of radio collars fitted with additional GPS devices. However, to collar the animals, we first had to capture them, and we hoped that this could be accomplished with minimal disturbance to the animal and its habitat.

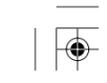
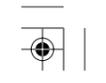
Tom departed after two weeks at the field station, and we were joined by other scientists from Mongolia, the U.S.A. and Argentina. Our primary objective in the first few weeks was to record the number of snow leopards using this area and discover the activity hotspots (areas with a lot of snow leopard movement), so that we could set up snares, then capture, collar and release them safely. We surveyed the ridgelines and scoured the valleys and slopes. Since it was summer in Mongolia, there was no snow, except for some solid ice masses in the more shaded

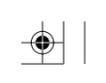
parts of a few valleys. Initial surveys revealed that our base camp was located virtually in the heart of the activity zone of snow leopards. There were scrapes made by the cats less than 100 m. away from our *ger* camp and on many nights, we heard rumbling stones as ibex ran past our camp. Following reconnaissance surveys, 11 automatic camera traps were set up and our wait began. Our newly-designed camera traps were capable of recording several digital pictures within seconds and what made it even better was that there would be no agonising wait for the film to be processed, it would not startle the animal with a bright flash, it wouldn't run out of film (it had none!) and it would take up to 15,000 pictures between two visits.

We had chosen well. Our first snow leopard was caught on camera on the fourth day. We named the snow leopard, 'Eureka'. In subsequent days, our automatic cameras captured images of snow leopards on 17 different occasions. Since the cameras were programmed to take several pictures rapidly on each trigger, we had over a hundred snow leopard pictures, in under a month. The cameras did not discriminate between species – snow leopard, ibex, birds, human beings... livestock – we got them all. And since the pictures were being taken without a flash or any clicking noise, rarely did any of them even realise the camouflaged cameras had spied on them.

#### UNRAVELLING THE MYSTERY

Our camp could host six to seven scientists at a time, apart from our cook, camp manager and a driver. Researchers, veterinarians and social scientists came and went, and will continue to do so, depending on the requirements of the study. It was fun to share experiences, language and traditions within a team—a virtual United Nations representing Mongolia, India, the U.S.A., Argentina, Sweden and Austria! We would all huddle around the field computer each time the team returned from the cameras and every image of a snow leopard met with uproarious cheering. We would then sit on different computers, and attempt to compare and identify individual cats. There were four individuals in all, each with such specific traits that we ended up naming them accordingly. After 'Eureka', our next set of pictures was of a snow leopard that seemed to move with a distinct avuncular gait. He was named 'Uncle'. The third snow leopard, 'Inquisitive', chose his own name by displaying a great curiosity and peeping into the camera deployed on a ridgeline. Then came a handsome, large snow leopard with an unusually long tail and an arrogant walk. He was named 'Longtail'. These four snow leopards were using this small area of just 10 sq. km. around the base camp, perhaps a small portion of their huge home ranges. It almost seemed like they had overlapping home ranges and were taking turns in posing for the photo shoots.





Our next task was to survey the neighbouring mountains to search for and quantify evidence of snow leopards and their prey. The population status of a species is an indicator of the success or failure of conservation efforts and monitoring requires that populations are estimated accurately and regularly over several years. For a species found in such low numbers, it is a Herculean task to estimate and monitor their populations over time. Earlier methods indexed snow leopard populations directly by the number of signs (scats, scrapes and pugmarks) that one encountered in a random transect walk. There were concerns about the inaccuracy of this method as several experts argued that these cats mark an area on the basis of availability of marking posts and more signs do not necessarily mean a higher population of snow leopards. The modified approach looked at the opportunities that these signs provided by estimating the proportion of the total area occupied (site occupancy) by snow leopards, and our probability of detecting them. An empirical estimation of probability of detection and site occupancy using statistical tools will probably allow researchers to monitor changes in the populations more accurately. We had to collect supporting data to vet these hypotheses. We also intended to prepare reliable maps and provide predictive models of the snow leopards' distribution in our study area. The maps would be crucial in planning our future steps.

#### CURRENT DEVELOPMENTS

The first team, of which I was a part, returned in the last week of July after handing over the baton to several other scientists from Mongolia, the U.S.A., Sweden and Austria. The mandate immediately after our departure was to capture a snow leopard within weeks. As expected, before long, the Mongolia team messaged that a snow leopard had walked into a snare and had been collared and released on August 19, 2008 – just 300 m. from the base camp. This was 'Uncle', appropriately renamed 'Aztai' – Mongolian for 'lucky'. On September 14, the team collared a second snow leopard. This time it was 'Longtail', renamed 'Bayartai' – Mongolian for 'everybody happy' or 'go with joy'.

This study, underway in Mongolia, is envisaged as one of the most elaborate and exhaustive ever on this elusive species. It will open avenues for several other researchers and help countries plan their own snow leopard conservation strategies. In the second phase, starting after a few years of field research, this



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The Altai and western mountains of Mongolia are a stronghold of the Asiatic ibex *Capra sibirica* (top), the main prey of the snow leopard. The fragmentation and decline of ibex populations is adversely affecting the cats. Poaching for skins, retaliatory killing for livestock predation, and climate change exacerbate the problem. Head gear (above) made from the fur of snow leopards is common in Mongolian markets.

programme is expected to develop into a unique conservation, research and training facility. From the ongoing research, a holistic conservation programme should emerge. Researchers and conservation practitioners from all 12 snow leopard countries are expected to benefit from the educational and hands-on research opportunities that will be made available at the South Gobi facility.

We look forward to shattering several myths about snow leopards over the next decade when cohesive research will lead to a better understanding and hence more effective conservation of these ghosts of the mountains. Back home in India, there is some good news. The newly-initiated Project Snow Leopard under the aegis of the Ministry of

Environment and Forests will be run along the lines of Project Tiger and Project Elephant. The aim in this case is to protect the cats while involving local communities at various levels. With an emphasis on scientific research and monitoring being a part and parcel of the project document, there is a distinct possibility that at some point in the future, a long-term study in India could help decipher the mysteries of snow leopards in the Himalaya.

Among all these larger goals and ambitions for the project, I have one that is especially dear to me – to see a wild snow leopard. This wish I hope will come true during my next trip to Mongolia, scheduled in a few months. *Irbis and I have a tryst with destiny.* 🐾

