

Mountains of the Snow Leopard

Simon Fraser

Plates 24–27

Very clearly, on the snow-covered ice of a frozen river, a set of pug marks led upstream into the high mountains which we had just crossed. I had lost count of the number of times we had seen similar tracks during our long journeys on foot and on ski. Almost wherever we went there were signs of this elusive and beautiful cat, the snow leopard, luring us further into the remotest corners of the Zaskar range. But now in March 1985, we were heading once more for Leh, tired and hungry after weeks of travel in search of snow leopards and the other large mammals such as bharal, ibex, argali and wolf, which roam the great mountain ranges of Central Asia and the Himalaya. We gazed at the tracks leading enticingly upwards, then turned and started the descent to the Indus valley. Another time maybe . . .

The 1981 Survey

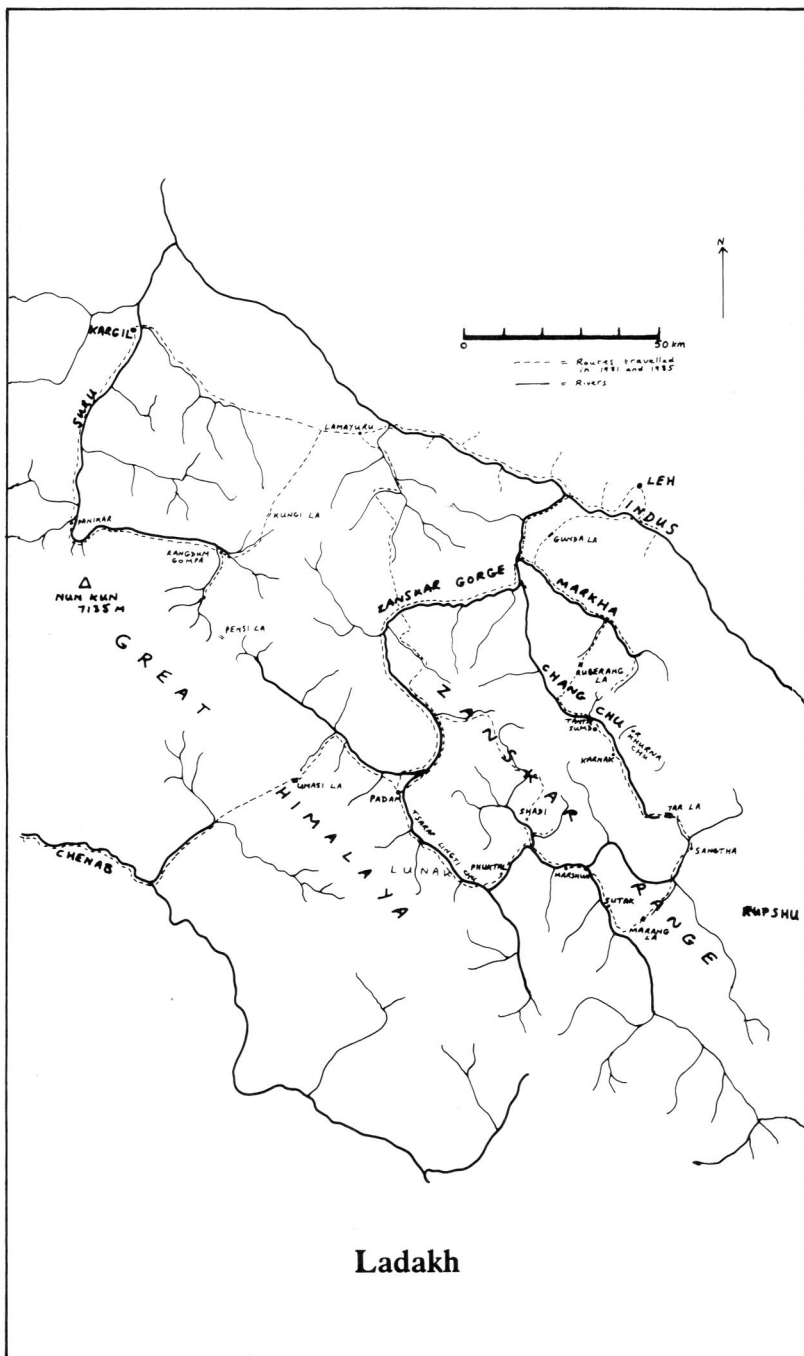
My interest in snow leopards had been fired in 1977 when a Ladakhi friend and I heard two of the cats approaching our bivouac in the Chang Chu gorge on a cold November night. In January 1981 I arrived in Delhi with Ben Osborne, a wildlife biologist, to embark on a wildlife survey of Ladakh. Our purpose was to investigate the status and distribution of the mammal species of Ladakh and to look at conservation measures in this important region. We chose the winter season because there are several important advantages: the animals are easier to find because they descend to lower altitudes; snow cover provides more information from tracks and the animals are easier to spot; and some regions such as the Zaskar gorge can only be reached in winter conditions when the rivers freeze over. Information was collected from sightings, tracks, droppings, presence of dead animals, and from numerous interviews and conversations with local people. Until 1981, very little research had been done on wildlife in Ladakh, although there had been numerous visits by hunters during the era of British rule, which provided virtually the only documented information about the fauna. There was thus a conspicuous absence of up-to-date information about the wildlife in this huge area.

Since the introduction of civil flights to Leh in 1978, it is possible to fly there in winter when the Himalayan passes are closed to overland traffic. It is a spectacular flight which crosses the Himalaya in the vicinity of Kulu-Manali, with views eastwards to Kamet and Nanda Devi on the horizon and then over the bleak ranges of Rupshu with glimpses of endless ranges stretching into Tibet, giving a sense of vastness that no map can ever convey.

On arrival in Leh, we bought supplies and then visited the Markha valley. Although I had made several previous visits to the valley, it was a chance for Ben to get to know something of the environment and conditions in this part of Ladakh before venturing into other regions closer to the Himalaya. Markha is



Photo: Simon Fraser



situated within the 3 hectares of the proposed Hemis High Altitude National Park and a survey by personnel of the Forest Department in Leh has counted over 1000 bharal in the area. There are several villages in the valley which has a population of approximately 300 people. Despite extensive grazing by domestic animals, there is a stable balance between human activity and the presence of wildlife which is not seriously threatened in this area. We wanted to cover as wide an area as possible in the survey and had divided Ladakh into a number of different sections. Each area would take months to survey thoroughly but we were confident that in the six months at our disposal we could pinpoint areas of serious risk to wildlife and identify prime areas for effective conservation management. Away from the main valleys are huge uninhabited regions which we were keen to see, as they might provide natural sanctuaries for animals. So far there was no reliable information to refute or confirm this, and it was essential to break new ground by covering regions not normally monitored by the Forest Department.

We were not rewarded by many direct sightings of animals in the Markha area on this occasion, but feeling fit and acclimatized we returned to Leh, resupplied, and in late February set off on what we expected to be a routine journey into Zaskar via the great gorge of the Zaskar river. News from higher up the gorge was bad. A party of six tough looking Zaskaris told us that the route was difficult due to unusually mild conditions. They laconically described the problem as 'chu mangpo' — a lot of water. As we continued, conditions indeed worsened and our two Zaskari companions were decidedly unhappy, saying that the route had changed beyond recognition in the last ten days.

In the gorge there are no known escape routes in a 50km section, and safety lies at either end. Dave Mallon, a biologist who spent four recent winters in Ladakh, has travelled the gorge several times in varying conditions, on one occasion being marooned in a bivouac cave for five days with vertical cliffs and open water ahead, and retreat cut off when the ice below broke up. From enquiries with the Zaskaris, we learnt that there have been no fatalities within living memory, mainly because there are always experienced people in any party. No doubt there have been numerous epics and narrow escapes.

We were forced to retreat to the Indus valley and decided to ski in from Kargil without further ado. In Sanku we met Guy Sheridan and his Norwegian friends who were commencing an impressive ski journey to Manali, (see A787). We travelled up the Suru valley on ski, which proved to be incredibly hard work in atrociously soft snow conditions. The weather was poor for several days with fresh snow and low cloud, but we spent this time at Panikar, gathering much information about wildlife from the local people, many of whom are keen hunters. Then we slogged on up the valley, putting our slow progress down to a combination of heavy loads, lack of previous experience on ski, and bad conditions. Months later I was relieved to read that Sheridan's party considered these snow conditions to be the worst they had ever encountered!

We reached the Buddhist monastery at Rangdum in a blizzard and stayed for a couple of days waiting for the surfaces to improve (to no avail) before pressing on towards Zaskar. The fresh snow meant slow progress and during another four day snowstorm on Pensi la, we ran short of food for the arduous push over



25 Kiang — the Tibetan wild ass — in bleak winter landscapes near Sangtha, Zanskar.

Photo: Simon Fraser

the top. Ben had a deadline to leave India in order to take up a project on deer in Mongolia and could not risk being delayed. We watched ibex foraging for food on some highly dangerous looking avalanche slopes, then returned to Rangdum to resupply, suppressing our frustration at failing to reach Zanskar again.

Now we had to decide on which exit route to take. Neither of us wanted to return down the Suru valley. From Rangdum there were three passes that would bring us out on the Kargil-Leh road but two of them were reputedly very avalanche prone, and the Kungi la was the pass that we were advised to take. Well fed by the kind monks of Rangdum, we set off, determined to get through into new country. We ski'd up an easy valley for a day until we reached 'the third ravine on the left' where despite the heavy snow cover we could see traces of a summer path climbing steep ground just beside the entrance to the narrow gorge that led towards the pass.

We were still seeing ibex herds, and the usual wolf, fox and snow leopard tracks, but for the most part were more fully occupied with the business of travelling, eating and resting. In these mountains only a small fraction of the time is spent in actual research. Much of the time is taken up with getting there, getting back, surviving, waiting, or other activities that have to be done before one can get to grips with the fieldwork. As a biologist, Ben found this particularly frustrating, and at no time more so than now, when we were entering fascinating country with some exciting glimpses of animals but with a difficult pass and time limits taking priority.

The tributary gorge proved to be a tricky problem, with water and slush pouring over the ice as spring approached. To avoid it we climbed over a shoulder on unstable snow slopes that made a couple of frightening bangs but stayed put. Then we descended a steep gully to rejoin the gorge, which we followed upstream along a roller coaster of cones of avalanche debris, increasing in size as we climbed higher. This was worrying country to travel in. We had to take the skis off in one place to clamber up a massive wall of avalanche debris, 100m high, that filled the narrow V-shaped valley. But we eventually saw safer terrain ahead and found some rocks where we could rest and brew up. Anxious to cross the pass before the next spell of bad weather, we decided to head for the top that evening. To avoid disturbing the slope by zigzagging, we made a bee-line up steep snow to the pass, approaching the top gingerly, hearts in mouths as the slope felt so creaky, with an eggshell crust covering masses of powder. At the top (c.5170m) in the fading light, I caught a glimpse of huge cornices and steep cliffs dropping into the gloom on the N side.

We had no rope but our fears were unfounded for the morning revealed a convenient gap in the cornices and we descended a rocky spur on the left to reach a small, snow-covered glacier. The views of the Karakoram far away to the north were superb. The south-facing ridges ahead of us were brown and snow-free but this was misleading, for the valley floor and N sides of the ridges still held plenty of deep snow. However, we were definitely entering a much less snowy zone, in the rainshadow of the Himalaya, and we expected no further problems except for the ski descent. Neither of us had ever ski'd downhill before except for a few sessions on a dry slope at home. We were

rather unbalanced by our heavy loads but it was an exhilarating and relatively effortless descent, with the occasional tumble. I will never forget the pleasure of sliding down after so many days labouring to go up or along.

We weaved our way down the upper slopes, down and down, until we reached a difficult section that tested our patience to the limit. It was a snow covered, frozen river in the process of thawing, with very steep and unstable scree slopes at the sides, which offered no passage. The rotten ice was covered in slush and water, in turn covered by about 60cm of 'depth hoar', a convenient term that we discovered later in a skiing book. Without skis one sank deeply into the slush. With skis, the fragile honeycombs of the depth hoar gave no support whatever, and we were reduced to a snail's pace, having to lift the skis high at every step and breaking a trail with ski sticks because the tips of the skis caught under the thin crust as we tried to move forward. There was nowhere to camp or even to sit and have a rest without getting drenched in freezing water and slush, but in the distance we could see a spit of gravel at a river confluence, so we slowly closed the distance and eventually camped there. The next day the crust was just strong enough to support us and we ski'd on until the snow finally ran out. Adding the skis to our packs, we plodded on down the immense Kungi gorges whilst bad weather swept over the pass behind us.

Ben then proceeded to Mongolia, whilst I teamed up with Ian Coward. We set off at the beginning of May to walk from Lamayuru to Padam, with a quick foray into the Shadi district and some very wild and formidable country further east in the heart of the Zaskar range. It was austere and forbidding terrain, totally uninhabited, harsh and bleak, but with a high density of prey and predator species in comparison with more populated regions of Ladakh. We had some excellent sightings of ibex and bharal, and there was abundant evidence from tracks of the presence of wolf and snow leopard. By now we were able to make comparisons between different areas; from the Suru valley where probably the pressure on wildlife is greatest; to the Markha valley where there are steps being taken to conserve and manage wildlife in an inhabited area which is very accessible to modern trekking tours and other developments; to the empty wilderness regions of the Zaskar range, where an estimated 3.5 hectares of undisturbed country provides a natural sanctuary for large mammal species¹.

In June we crossed the Umasi La (5295m) but by now the snow conditions were excellent and it was a thoroughly enjoyable trek in fine weather through some impressive glaciated country. We descended into luxurious, knee-deep grass and flowers and the forests of Kishtwar. We had planned to have a look at Barnaj II, but time was pressing, Ian lost his only pair of trousers during an awkward river crossing, and I was tired after five months in the mountains and fancied a rest in Kashmir, with some enjoyable climbing on an accessible peak. We camped for a couple of days in a forest glade below the lovely peak Agyasol (6200m) and I revelled in the greenery after months in the harsh, arid country beyond the Himalaya. Then on, down the huge Chenab valley to Kashmir where we ended our travels for this season by trekking across the range between Pahalgam and Baltal and ascending the S face of Kolahoi (5425m), where the views extended from Nanga Parbat to Nun Kun and Sickle Moon. Everything



26 Near the top of the Kungi la in Ladakh, looking south.

Photo: Simon Fraser

went as planned, travelling light, climbing two peaks and two passes and enjoying the magnificent alpine flowers, and hospitality from kindly herdsmen.

On our return to the UK, we got together with Dave Mallon, who had spent the winter surveying the Ladakh urial, and published our findings in *Oryx*² (see references). This paper stimulated considerable interest in the wildlife of Ladakh amongst other researchers and drew attention to the potential of Ladakh as a stronghold for various species, despite conservation problems typical of a fragile mountain ecosystem. We were keen to make further visits to the area to concentrate on wildlife photography and to penetrate some of the wilderness regions of the Zaskar range. Several popular routes are used by summer trekkers, but huge areas remain untouched, frequented only by snow leopard, wolf and the roaming herds of ibex and bharal.

The Wildlife of Ladakh

based on the 1981 survey², and work on the urial and snow leopard by Dave Mallon.

The whole area of Ladakh is mountainous and subject to a harsh continental climate, with scanty rainfall and cold winters. The landscape is generally arid and inhospitable, with oasis-like settlements mainly confined to the major river valleys of the Indus, Zaskar, Nubra and Suru, separated from each other by rugged mountains cut by deep gorges. The plants consist of alpine, steppe and semi-desert communities. Human influences on the environment include cultivation, animal grazing, fuel collecting and scrub clearance, hunting, and modern development projects such as new roads.

The snow leopard, *Panthera uncia*, is an endangered species and extremely difficult to study in the wild due to its shy nature and a low population density, distributed in high and remote mountains. A small, stable population exists in Ladakh, estimated¹ at 100–200. In most of its range across a large area of Central Asia, the snow leopard is threatened by hunting and from human population increases, which cause grazing competition between livestock and wild ungulates, which are the main prey of snow leopards and are also hunted. In Ladakh, snow leopards often attack livestock in winter and may be killed by villagers. Other cats in Ladakh include the lynx, *Felis lynx*, and Pallas's cat, *Felis manul*, both of which are very rare. There is a small population of brown bear, *Ursos arctos*, in the Suru valley and N Zaskar, the E limit of this species in Kashmir. Wolves, *Canis lupus*, are widespread and common in Ladakh, and prey on livestock all the year round, posing far more of a threat than snow leopard. Traditional wolf traps can be seen near many villages. Wild dog or dhole, *Cuon alpinus*, is now extremely rare in Ladakh. Foxes, *Vulpes vulpes*, are common, and there are several species of mustelid. The wild ass, *Equus hemionus kiang*, is fairly common on the plateaus of E Ladakh but is not seen in the main areas open to foreigners. Another E species is the argali, *Ovis ammon hodgsoni*, which lives mainly above 4500m on the plateaus. A rare species of wild sheep in Ladakh is the Ladakh urial, *Ovis orientalis vignei*, with a total population³ of 1000–1500, a considerable reduction from the numbers reported by early visitors. It is found in the Indus valley and tributaries and is therefore the most accessible and vulnerable to hunters of the ungulates of Ladakh. Ladakh is a stronghold for bharal (blue sheep), *Pseudois nayaur*, which is

common in the E half of Ladakh. The Siberian ibex, *Capra ibex sibirica*, is common in the W half and is regularly hunted, particularly in the Suru valley. Its territory overlaps with bharal in some places. Several other smaller species to be seen include marmots and hares.

The 1985 Survey

Dave continued his research each winter, but due to work commitments, Ben and I were unable to return to Ladakh until January 1985. The plan for this year was to travel quickly to Zaskar and to spend as much time as possible in the Shun-Shadi district which had proved so promising in 1981. The challenge of travelling there in winter, the relative abundance of wildlife, and the sheer remoteness, gave it an irresistible appeal. Our choice was not made without extensive discussion beforehand about the merits of going to a better known and more accessible region where the chances of photographing animals would be higher since we could afford proportionately more time sitting and watching and waiting, essential ingredients for successful wildlife photography.

Unfortunately I succumbed to a virus infection in Leh, followed by pleurisy, so we were delayed for about three weeks before starting up the Zaskar gorge with three Zaskari porters.

The journey to Padam was straightforward, though in places we had to climb rocks or wade through water flowing over the ice, an unpleasant experience in the sub-zero temperatures, with bare feet sticking to the rocks as soon as we emerged. The Zaskaris sang songs, lit fires to thaw out and rubbed mustard oil on their legs. The ice was fickle, ever changing. In some places, the deep blue water flowed silently, cold and malignant, with only a narrow pavement of ice attached to vertical cliffs, linking sections of more secure ice cover. Sometimes the water roared over rapids and disappeared under the ice again lower down. To fall in the river did not bear thinking about. The surface underfoot was infinitely variable, from hard polished ice where we tumbled like skittles, to sections of breakable crust where we crunched through tinkling shards like broken glass, or rotten honeycombs of ice and slush. The ideal was flat ice with a dusting of snow to give a better grip. More often the surface was irregular, bulging with slippery, polished domes over hidden boulders, or broken into crazy patterns as the ice cover had collapsed with a drop in water level. Occasionally, frozen waterfalls plunged from the cliffs like gleaming white pillars.

At night we bivouaced in caves and then travelled all day, the conditions becoming colder and snowier as we approached Zaskar, with 95% of the river frozen over, winding in frigid silence between the towering cliffs. Pools of open water gave off frost smoke in the brittle, cold air, and frequently a wind whistled down the gorge, adding a further chill to the intense cold. After six days we reached the first Zaskari settlement, blanketed in a white mantle of powder snow about 50–60cm in depth. In some winters, with 3m of snow, travel would become extremely difficult, and in the areas we were heading for, any movement would be virtually impossible due to the avalanche risk, let alone struggling huge distances in 3m of powder.

We reached Padam on the eighth day, rested two days and pressed on up the



Photo: Simon Fraser

Tsarap Lingti Chu through the Lunak (demons) region. Signs of wildlife increased dramatically, with numerous sightings of ibex and many tracks of fox, wolf and snow leopard. I had travelled through this area twice before and remembered it as a deep cleft cutting through the mountains. Compared to the Zanskar gorge, it now seemed like a gentle dale. It was striking to notice how much more vegetation there was in this area than in Ladakh, and the marked increase in the density of animals the environment could support. A day from Padam, the deep snow ended and we made faster progress with our heavy loads of supplies. At night we stayed in villages and were always given a warm welcome. After staying at the beautiful monastery of Phuktal, we pressed on into wilder country and spent several days at a cave in the Shadi region, just below the valley leading to Tso Tok Fu, a lovely lake hidden in the mountains. We spent some time exploring the area and watching bharal and ibex, and crossed the ice of Tso Tok Fu to visit the upper valley, inaccessible in summer because of cliffs around the lake. The valley beyond was lonely and beautiful, with jumbled old moraines leading up to meadows of yellow winter grasses beside a meandering river fed by springs. At 4200m were dense woods of gnarled willow trees, and empty valleys beyond, leading to unknown passes.

Just as we got back to camp that night, Sonam Jorpel told us excitedly how he had seen a big snow leopard emerge from the valley we were descending, a few minutes ahead of us. Sonam was fetching water from the river when the cat ambled past him on the other side. We raced off to track it but it was almost dark and we were too late to get a sighting. Next day we set up the cameras with a radio controlled shutter release but there was no more sign of the snow leopard and it could be weeks before he passed this way again.

The original plan had been to cross the pass behind Shadi with one month's food, to the area I had visited with Ian in 1981. My illness in Leh had delayed us so much that we were unable to attempt this, but with hindsight this plan could have been very problematic, with midwinter temperatures probably well below -30°C above 4300m, the difficulty of carrying sufficient food, and the serious risk of becoming completely cut off by a heavy snowfall.

With new visa regulations we had to leave India in April and had flights home booked in advance. We had to be sure of reaching Leh in good time, and as always, felt the pressure of time limits, and now a dilemma as to which route to take to Leh. If the passes were uncrossable so early in the year and the ice in the gorges broke up then we could be seriously delayed. We decided that we would have to attempt the first pass no later than 9 March, so that if we failed to cross it we would have enough time (we hoped) to take the long route back down the gorges if the ice was intact. Once over the pass we assumed it would be plain sailing, with time in hand to watch animals and explore new areas.

We headed up the great Shun gorges and in one long day reached the hamlet of Marshun. At the last settlement, Sutak, we hired two men as guides, because with the summer trails hidden by snow we could not risk wasting time losing the route to Marang la in the numerous tributary gorges below the pass. Beyond Sutak the weather was bad and we lay up for a day whilst it snowed. The guides only had two days food and we had very little extra to feed them or wait for an improvement in the weather. Next day was no better but we pushed on up

gloomy canyons obscured by mist and falling snow to a bivouac cave at 4650m. Luckily the weather cleared and we headed for the top on a fine day with a howling gale from the SW. The Marang la is unrelentingly steep for 1000m and we lost all rhythm as we struggled up loose scree, blown bare by the gales, or sank into deep snow drifts. We paid off the Sutuk men by the ragged prayer flags on the top at 5400m, broke through a small cornice on the far side and were soon up to our waists in snow. There followed the most arduous descent in snow that I have ever known, forcing a trail down through thinly crusted powder with more fresh snow on top of that. It was essential to reach shelter that night for we only had one small tent, and a little paraffin for the stove, as we were relying on wood and animal dung for fuel. We could not subject our Zanskari companions to a night out in such conditions.

After many hours of toil we reached a frozen river and the deep snow was behind us. Using some wood we had carried over the pass we had a much needed brew before carrying on to find a bivouac cave where the Zanskaris, expert pyromaniacs, lit a hillside of scrubby vegetation which made a blazing furnace outside the cave. But our troubles were by no means over yet. An error on the maps cost us a lot of time and energy looking for Sangtha, a Changpa nomad camp, where we resupplied just as the food ran out. The nomads were a cheerful and hardy bunch, dressed in rough sheepskins and living in yak-hair tents. Even in March it was bitterly cold and windy and I marvel at how Europeans such as Heinrich Harrer travelled across Tibet in winter with little food or equipment. Nothing would induce me to spend a winter with the Changpa.

From Sangtha, another exhausting slog in deep snow led to the Yar la (4930m), but on the way we were thrilled to see a group of kiang (wild ass) for the first time. From the pass, it was downhill to Karnak, the main autumn camp of the nomads, occupied now by three old men and a couple of young yak herders from down the valley. They seemed to be perfectly happy in their isolated home. Beyond Karnak we passed the place where I had first heard the snow leopards in 1977. A young Changpa with a herd of 214 yaks told us he had seen one the day before at Tantse Sumdo. We stayed there for two nights but there was no sign of any wildlife at all. The Zalung Kurpo La looked very snowy, so rather than a guaranteed slog, we preferred to push on down the Chang Chu and cross the Ruberang la which was still an unknown quantity. The Chang Chu was delightfully easy in its winter condition with only five wades rather than the 70 necessary in autumn. Chased by snowstorms which closed in behind us, we had an easy, snow-free crossing of Ruberang la (4970m), and reached the village of Markha where we received a very warm welcome from old friends and the customary large quantities of chang. The final pass was Gunda la (4970m), crossed on a superb sunny day, with a good sighting of the small, isolated herd of argali that live there. That evening, our last in the mountains, we saw fresh snow leopard tracks but we were not to be tempted from our goal of food and mail in Leh the next day. Upon reaching the Indus at 3250m, we basked in warm air at last, amidst the sounds of insects, birdsong and running water. Spring had arrived. There was no fuel, so with the ice axe we split up the willow staves which we had used for the last 500km and

lit a fire for a final meal of tsampa and butter tea with our Zanskari friends before hitching a lift up the road. Leh now seemed to be a noisy and bustling metropolis.

Postscript

The journey was over and it was now a time for reflection. Searching for the elusive animals of the Himalaya had proved to be a time-consuming, arduous but satisfying task, and in winter conditions had provided some exciting travelling and memorable moments. One never forgets the first sighting of wild ass, or of ibex grazing on patches of vegetation clinging to huge crags, or of fresh snow leopard tracks leading tantalisingly up deep and awesome gorges. It seems inconceivable that these animals should ever disappear from the mountains. Yet that is what has happened and is happening in many areas of the Himalaya. The record of Ladakh is the exception rather than the rule, and urgent measures are needed to arrest the destruction of habitat and wildlife throughout many parts of Asia. In an article in *A789*, Rob Collister maintains that 'a taste for landscape, for natural beauty, for wildness . . . is not innate in human beings, it is an educated response'. How much more so of the response to conserve what George Schaller describes as 'the dying mountain world of the Himalaya'.

In his book *Stones of Silence*⁵, Schaller drew attention to the plight of Himalayan wildlife and the degradation of the environment. After years of work in Pakistan and Nepal, he wrote 'Anyone who consciously observes the exponential destruction of wilderness becomes almost automatically an advocate for the natural world. To conserve a remnant of beauty becomes an ideal and this ideal possesses one until it becomes a faith: it takes a believer to understand sacrilege.' Effective sanctuaries for species such as snow leopard and its prey need to cover very large areas, and Ladakh is one of the few regions of the Karakoram-Himalaya where suitable conditions exist. In our journeys, we found that there are viable populations of large mammal species in Ladakh, and extensive areas of relatively undisturbed country. Despite the limitations of a harsh environment, the outlook is favourable.

It is our privilege to have the resources and freedom to visit the Himalaya for our own interest and recreation. We do not have to struggle all our lives to wrest a living from the land, to endure the hardship and poverty which is so widespread in Asia. Any struggles for survival in which we indulge on the mountains are contrived by us for our own satisfaction. As devotees of the mountain world, our 'springs of enchantment' should embrace not only personal adventure and achievement, but the continued well-being of the environment to which we are so compulsively drawn. That is to say, an environment where habitat destruction and the serious endangering of wild species, both plant and animal, becomes a thing of the past. We have the knowledge; surely it is not impossible to ensure that the knowledge is applied.

Schaller's poignant words set a challenge which we cannot ignore: 'the fact that a living being can vanish from this earth solely because of man's improvidence and neglect is appalling, and the utter finality of it touches the consciousness of far too few.'

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