Gregg Treinish Expeditions Council Grant Number EC0570-12
Submitted Dec 30th, 2013

Abstract –

Funded through the National Geographic Expeditions Council, our team of five set out to document wildlife of the Darhad Region of Mongolia on skis. In March and April of 2013, we focused on the wolverine (*Gulo gulo)*, and we desired to collect DNA evidence of the elusive creatures who are remarkably understudied in the region. Facing exhausting unconsolidated snowpack, extreme cold, and steep mountain terrain, we successfully documented fifteen wildlife species, including collecting 33 DNA samples from what we believe to be wolverines. We found a snow leopard track in an area where they have not been documented in over 40 years, and encountered a nomadic people traversing over the range on their annual migration. Overall the expedition covered 230 miles in 22 days and was a resounding success.

Grantee Report National Geographic -- December 23rd, 2013

Our team proposed a ski expedition to survey for wildlife, with a focus on species detectable during the winter in Northern Mongolia. The Darhad Valley and surrounding mountains in northern Mongolia represent a culturally and biologically diverse region that has been very poorly documented in the past and that is facing increasing pressure from climate change and economic exploitation. A winter wildlife survey had never been

conducted in the area and our ski transect through the region presented the opportunity to document species that are elusive and hard to detect during the summer. Additionally the new formation of nationally protected areas in the Darhad region, made the timing of the expedition especially important in establishing a baseline of what is present in this rapidly changing environment.

Our expedition team chose to focus our survey efforts on Wolverines (Gulo gulo) because they are an indicator or flagship species for the effects of climate change on mountain ecosystems. The species is believed to require a stable snowpack in order to successfully den, and as they are tied to regions with low summer temperatures, wolverines are found primarily in high mountain ranges with cooler temperatures, such as those in Northern Mongolia. The species has been poorly understood throughout its range, but the lack of information remains, even after this expedition, particularly acute in Asia. Two of our team members had previously documented the presence of wolverine through interviews with herders and collection of DNA samples from pelts in the region. However, data on their density, distribution, biology, and ecology in this region were only previously anecdotal at best.

The National Geographic funded Mongolia Wolverine Expedition was successfully carried out between March and April of 2013. As we skied from Jigleg Pass more than 230 miles to Soyo

through a severely unstable snowpack and avalanche terrain we surveyed for wolverine tracks as well as for wolves, lynx, sable, musk deer, elk, ibex, and several other species detectable in the winter. We used all non-invasive survey techniques including backtracking on wolverine tracks to collect hair and/or scat samples. While we expected to find one or two wolverine tracks, at best, we successfully documented a robust wildlife population including 27 sets of tracks and we were able to collect 33 DNA samples from wolverines and other species, which will be used to assess regional effective population size (eg, number of wolverines contributing to the gene pool), connectivity between different mountains ranges in Mongolia, and the relationship of Mongolian wolverines to global wolverine populations. Additionally, team member Rebecca Watters will utilize the 33 DNA samples that will be analyzed as part of the ongoing work of the Mongolia Wolverine Project. "These samples, pooled with other samples from the project, will augment understanding of wolverine population dynamics in Mongolia," said Watters. The expedition will allow Rebecca to identify drainages for camera work that will take place this coming year under the direction of the Mongolian Wolverine Project, and that will involve cooperation with multiple entities (Mongolian PA Administration, Hovsgol Aimag Environment Department, Panthera, BioRegions, possibly others.)

Along with the DNA we collected, our team also documented extremely rare snow leopard tracks. Snow leopards were believed to have been driven from the area years ago, and the presence of these tracks expands the elusive cats known range. They are listed by the IUCN in the surrounding area as "probably extant" and

previously only anecdotal evidence gathered from locals has suggested they remained in the specific area we were studying. Further research will be conducted on snow leopards in the area by members of our team throughout the next several years in partnership with several outside groups. The discovery of these tracks, although not scientifically robust, as we were unable to get any DNA off of the track, was a clear and exciting sign of their presence in this remote and desolate region. In our minds, this discovery alone would make the journey worth all of the effort.

Our team was extremely surprised to document wolverine tracks nearly every day of the expedition. Gregg Treinish, Team Leader and Executive Director of Adventurers and Scientists for Conservation said, “We were blown away to find wolverines in nearly every drainage we surveyed.” The team’s work more than triples the number of samples that had been previously collected in the region and provides the first samples from living wolverines.

The Darhad region has recently been set aside as a protected area by the Mongolian government and the team’s extensive wildlife survey was designed to contribute to the work of local biologist and conservationist, Tumursukh, and his team of 32 rangers. Tumursukh recognizes the importance of the region to Mongolia’s

biodiversity and worked with the government to preserve the area for conservation. “The natural areas that are set aside in Mongolia are truly maintained for the protection of the species. There are laws protecting them from human interaction, and researchers are working hard to fully understand the biodiversity of these areas,” explains Treinish. During the survey the team documented 14 separate animal species. Along with finding evidence wolverines and a snow leopard the team recorded wolves, lynx, mink, and eagles among many others. The research will aid Tumursukh and his team to further understand the biological importance of this region. Jason Wilmot, team member and wolverine biologist said, “The protected areas of the Darhad are a world-class resource. It is remote, pristine country with an assemblage of wildlife species definitive of the meeting of the Mongolia steppe and the taiga regions of the north. The Darhad retains intact cultural traditions and is a true global treasure.”

Though the animal tracks were abundant, the conditions challenged our team at every glide of the skis. The snow conditions were unstable with cracking and collapsing more than six inches in areas, which forced the team to slog through sugary granules up to our waists, navigate avalanche terrain (we triggered a slide at one point), and ski down frozen waterfalls on metal edged cross country skis to reach the valley floors. Temperatures consistently fell below zero at night and we

battled frostbite, frozen water sources, and the knowledge that we were days away from getting help in one of the most remote areas in the world.

Our team was resupplied three times throughout the journey including once by the local reindeer herders known as the Tsaatan people. As we skied to a predetermined meeting point, denoted by "the large hill at the mouth of the valley", we were elated to see the train of reindeer approaching carrying our eight large red NRS duffels on their backs.

Another major highlight of the expedition was the unplanned encounter with the nomadic Darhad people as they made their bi-annual migration from the drier shores of Lake Hovsgol to the center of the Darhad Valley. We spent two days skiing and walking against the flow of nearly 3000 head of livestock and hundreds of people who were more than shocked to see the five foreigners along their route. We

stopped and spoke with the people, were welcomed into their homes, fed, and treated with great respect and honor. The experience was a once in a lifetime opportunity to interact with a group of people who are truly integrated into their surroundings.

Through nightly BGAN device check-ins the team was able to connect with over 10,000 people who tuned in for daily audio blogs and nearly 300,000 people on Facebook. All of our updates were posted and remain available at www.mongoliaexpedtion.com . Expedition photographer submitted photos from the expedition and team member Forrest McCarthy submitted video along with Gregg Treinish's footage. Short films were put together by missions media and a film complied by Forrest McCarthy was entered into the Backcountry Film Festival and will become available for use in March of 2014. We have received interest from the Mongolian edition of National Geographic and look forward to working with them on an upcoming article. Also, we have spoken with the NG Adventure group about a potential blog entry. In addition, thousands of students were able to use a custom curriculum developed in partnership with Montana State University and NG Education to enhance STEM learning. Students were able to ask questions of the team directly, which were answered during the nightly check-ins. "Receiving student questions in the field was an exciting way to expand the impact of our expedition. By engaging students we are not only spreading the word about little known places like Mongolia and species like the wolverine, but we are also hoping to inspire an interest in science and show how fun it can be," says Treinish.

Mongolia Blog Entry

We crossed high over the windswept pass, it was sunny but brisk. The sky had a fog to it despite a lack of clouds, it looked as cold as it felt. I popped my earbuds in scanning my ten dollar mp3 player for The Heart of Darkness, I was on track twenty-

two but had to scan through each of the previous tracks as there is a striking lack of buttons on such a thrifty gadget purchased from a small market in Ulan Bator.

Our horizon was as far in the distance as could be seen and the terrain was flat, flat enough that we had been moving for hours and the terrain around hadn't appeared to change, nothing grew closer. My eyes bounced back and forth from the ground beneath my feet, the red of my Madshus skis contrasting the blue shadows of an afternoon sun, to the black scree fields that were slowly becoming our past.

It was day seven, packs still heavy with the odds and ends that somehow always creep their way into a pack on the first section of an expedition. The rhythmic passing of time would cause me to repeat some random group of words almost like a mantra as one ski endlessly passed in front of the other. "Pushing far, near you are" or "glide, push push, glide, push push, glide."

Hunger always near the front of my mind and in the moments that I could push the thoughts of stopping to pull another Clif Bar out of my pack, my mind would inevitably begin to drift towards the mileage or lack there of. "Will we make our goal?" "How can we readjust and still encounter success? " There is simply no way we can make 400 miles if we can't make it to our goal on any single day. With a heart pounding, woomph, yet again, I've dropped more than six inches and can see the snowpack collapsing all around me. This is largely what has slowed our progress making it nearly impossible to progress more than ten miles in a day. My

hand, with a mind of its own was now reaching for the Shot Blocks I had forgotten I had placed in my pocket the last time I had stopped to wait for the team to catch up.

“push push, glide, push push, glide” the hunger, the cold, the time, the miles, the task.

We had been searching the northern-most portion of Mongolia for signs of wolverine, scouring the landscape for any sign of the elusive beast. We had found great success too, so much so that we had begun discussing the feasibility of continuing to follow the tracks to find DNA evidence every time we cross a track. It was a question of time and we were falling far behind our schedule oh so quickly. Something would have to give ,perhaps the overall route would need to be shorter, perhaps we were simply in a highly populated portion of the range where the glutens roam freely in every drainage. We expected to find them in the west, maybe one or two, but six days in to have found the tracks of eight? This was our purpose though, and we remained true to following each and every trace of the glutenous beast that we encountered.

“push push, glide, push push, glide…”

“Broken track on the right, pretty round, that interdigital pad is enormous, that’s not a wolverine track, not a lynx track, SNOW LEOPARD!” We had joked when preparing for the journey that we’d find one, that the sign of one would be mind-blowing, earth shattering even. Here crossing my path the fresh unmistakable tracks of a large cat, crossing a wide-open windswept tundra, I roared in elation.

Jason, our lead scientist was behind, his head popped up upon hearing the roar of my voice just barley audible through the ever-present wind. He saw my grin and knew. He heard me say it and responded with a shocked, “No, couldn’t be” I pointed with the grin leaping from my face. His face slowly shifted from the stoic look of a pondering scientist to a young boy finding his first fossil. Ear to ear his smile grew and our true geek emerged. We literally jumped and high-fived in mid-air, quite the feat while still strapped into our skis.

We took our time measuring each toe.

Rebecca was ahead for the first time in a long time. She and Forrest had kept going while. The two of us along with Jim Harris, our expedition photographer, stayed behind to properly document what we knew would be one of the most significant findings of the expedition. When documenting tracks such as these, measure each toe both by length then width, then the overall track, the interdigital pad (the area that would correspond to the palm of a human hand), and the straddle (the measure of the width of the tracks representing the shoulder to shoulder width of the animal and finally the stride, or the length of each full set of four paws touching down onto the wind-blown and hardened snow. Again we commented how amazing it was to have found something that hadn’t been confirmed in the area for nearly 40 years. We later learned that the Snow Leopard is considered “probably extant” in the region and that locals have often found signs of their existence. For our group however, despite the lack of DNA from the track, it was the jackpot, a sure sign that

simply getting out on the ground and exploring can make all of the difference in the world.

“push push, glide, push push, glide…”

We continued on our journey for 230 miles, sleeping in the relentless cold each night for three weeks and battling our way through the often waist-deep powder. We set out for the scientific gain of the expedition and remained true to our goals discovering more than 27 sets of tracks and successfully collecting 33 DNA samples. The Ring of Darhad Expedition and the associated educational curriculum would not be possible without a grant from the National Geographic Expeditions Council as well as support from Montana State University’s Institute on Ecosystems. Generous support was also provided by expedition sponsors Mountain Hardwear, Osprey Packs, Clif Bar, Horny Toad, Rite in the Rain, Supai Gear, The Brunton Group, NRS, AlpineAire Foods, Primus, Big Agnes, Smith Optics, Madshus, Baffin, Kahtoola, SanDisk, Steripen, Northern Lights Trading Company, and Voile