



Year End Update 2011

Focus on Genetics

SNOW LEOPARD CONSERVANCY

From the Director

The science of snow leopard conservation has come a long way since the 1980s, and it seems that each year brings new advances in technology. Camera trap images of snow leopards have been captured by our counterparts in nearly all the range countries. Satellite telemetry has enabled researchers to intensively computer-track snow leopards in some of the most remote corners of the planet. So, who would think that a pea-sized sample of snow leopard scat could tell us almost everything that costly, high-tech camera trapping and satellite telemetry can?

As a mud-and-boots biologist, I am genuinely excited about the future of DNA genotyping, for an animal as elusive as the snow leopard. With our partners we are refining techniques for analysis of scat to count and identify individual snow leopards, their gender, and how they are related.

We believe that our Mongolian study area (side 2) contains 16–19 snow leopards, but numbers are meaningless if we don't also understand other influences on snow leopard distribution. Here is where community-based monitoring of scats helps us see the big picture. Herders themselves can help to identify sites where effective *continued*



Rodney Jackson

continued from front

conservation measures can be implemented at the local and regional (landscape) level. By monitoring scat, herders can also help to identify the best corridors with good quality habitat that connect each isolated snow leopard population “patch” with its nearest neighbor. Genetics is a powerful tool, and people passionately committed to conservation are the key to using it successfully to save snow leopards.

Evolutionary biologist Dr. Jan Janečka is one such person. Jan runs a genetics lab at Texas A&M. In a story for an upcoming book, he wrote about collecting scat with



Ranger Battsoq and Jan Janečka in Mongolia

our partners in the Gobi Desert, “... we looked up and saw a steep cliff face with a large cave at the top. This cave was reportedly used by a snow leopard with two kittens. Despite fatigue and burning legs, my excitement was too great; I had to see into the cave. Once inside, I rested for a while, absorbing the incredible view. Ruggedly beautiful mountains surrounded by a vast, endless desert, only the remaining snow and blue sky breaking up the brown hues into a symphony of color. I was moved, sitting in a place where once a snow leopard rested with her cubs. I felt a deep bond.”

We are pleased to acknowledge Jan and others whose contributions to snow leopard conservation are found in the test tube and micro-centrifuge, scientists who may spend years in the lab, selflessly helping to pick apart the puzzle of the wild snow leopard, knowing they may never catch a glimpse of this beautiful cat.

Please continue your partnership in this work, at whatever level you are able in these uncertain times.

Rodney Jackson
 Founder-Director,
 Snow Leopard Conservancy

Ron Kimball



Chhinsu 1990 - 2011
 Wildcat Education and
 Conservation Fund



Ming Wah 1989 - 2011
 San Francisco Zoo

Two snow leopards who educated countless children and adults about conservation of their species in the wild

Watch our website for the launch of Darla Hillard's book, **Vanishing Tracks**, in e-book form in December, in time for holiday gift-giving.

Know that donations of any amount are gratefully accepted. Your support of community-based conservation touches many lives.

\$50 \$100 \$500 \$_____



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Photo courtesy of Dr. Georges Barth and the Zurich Zoo.

Graphic services donated by Tom and Mary Herrmann



Photos: J. Janečka



Traveling to remote areas in Mongolia

...the study species is like a “mountain ghost” living in remote areas, extreme habitats and low densities.

*Vincenzo Penteriani, Associate Editor
Animal Conservation*



Refining DNA Genotyping with Scat from China, India, and Mongolia

Animal Conservation, the journal of the **Zoological Society of London**, published a ground breaking paper in 2008, *Population monitoring of snow leopards using non-invasive collection of scat samples: a pilot study*.

This was a collaboration among the Snow Leopard Conservancy, Texas A&M University, the Chinese Academy of Forestry, the Mongolian Academy of Science, and George Mason University. The field team collected scats believed to be from snow leopards in northwestern India, central China, and southern Mongolia. Up to 54% of scats were misidentified as snow leopard, but were in fact red fox. The high rate of field misidentification suggests sign surveys incorporating scat likely overestimate snow leopard abundance. Findings highlight the efficacy of genetic surveys for monitoring snow leopards. These methods enable large-scale noninvasive studies that will provide information critical for conservation of snow leopards.

In June of this year, the paper was featured as the Associate Editor’s Choice, with a commentary that appeared on the website. In the review, Vincenzo Penteriani wrote: “The Janečka *et al* paper has, in my opinion, several merits. First, the authors have been faced with the challenge to focus their scientific interest

on one of the most endangered and unknown mammals of the world, the snow leopard. This does not allow ‘fast science’, because the study species is like a ‘mountain ghost’ living in remote areas, extreme habitats and low densities. However, it offers us invaluable and novel information on how to correctly approach the study and conservation of this felid.”



Photo: B. Munkhtsog

“...genetic surveys could be conducted with significantly less cost and effort than camera trapping.”

for monitoring wild snow leopards and estimating their population size. Working in the Gobi Desert, the team employed camera trapping and genetic analysis of scat. While both provided comparable estimates, we concluded that genetic surveys could be conducted with significantly less cost and effort than camera-trapping. Scat surveys also yield valuable DNA samples that can be used to examine landscape connectivity, relatedness, and how populations are connected.

Putting Research Dollars to Work for Conservation

In August, the **Journal of Mammalogy**, the flagship publication of the **American Society of Mammalogists**, published a continuation of the pilot study, *Comparison of noninvasive genetic and camera-trapping techniques for surveying snow leopards*, by Jan E. Janečka, Bariushaa Munkhtsog, Rodney M. Jackson, Galsandorj Naranbaatar, David P. Mallon, and William J. Murphy.

This is the first in-depth comparison of the two most important noninvasive methods

Cubs Helping Cubs



Child’s painting for Snow Leopard Day Festival in Southern Siberia

KID UPDATE!

Visit our Home Page to check out ***Cubs Helping Cubs*** and our cool new adoption kit for kids.

Get involved TODAY!