I love my job!

I investigate mysteries, solve riddles, and cajole or extract facts and inferences from the unknown cosmos. I’m a research ecologist. The task that my colleagues and I have set is to speak on behalf of wildlife and wild places. Yet, before we speak, we must listen carefully, stand witness to, and finally understand and appreciate the fabric of the newly viewed landscape and its’ complex inter-reactions to man’s landscape.

It is Craighead Beringia South’s hope that our work will bring understanding, acceptance, and compassion to the continuing use of this special place where we live.

We are happy to share with you this report summarizing our work.

Sincerely,

Derek Craighead
President and Founder of Craighead Beringia South

Cover: May full moon, Kelly, Wyoming.
CRAIGHEAD BERINGIA SOUTH
SUMMARY

STEWARDBSHIP
Wildlife and environment

EDUCATION
Tackling real world issues

ORGANIZATION
The board, staff and support

WWW.BERINGIASOUTH.ORG
Recent studies indicate that Golden Eagle populations in the West have declined by as much as 50%. The Golden Eagle Project uses long-term data as a measure of environmental and population changes. Insights from this study will help provide solutions.

The Golden Eagle study, dating back to 1963, gives us the unique ability to understand half a century of population fluctuations. In 2010, we began satellite tracking both young and adult eagles year-round. We are identifying important use areas, distance of seasonal movements, survival rates of adults and habitat utilization on both the local and regional scales. Concurrently, we are documenting eagle migrations and dispersal behavior and use video cameras to record prey selection at nest sites.

Current Findings:
• Nearly 100% of historic eagle territories are still occupied
• There are 50% more eagle nests now than in the 60’s
• Despite the increase in nests, the same number of total young are produced each year
• Some breeding eagles from Montana migrate south into Colorado for the winter
The Gobi bear wandered the vast central Asian Steppe: an expansive, fertile, sea of grass. For 40,000 years, the Gobi bear was content in its position as the dominant species. Less than a thousand years ago under the influence of Chinggis Khan, nomadic family herders coalesced into Mongol clans and then unified as the world’s largest and most influential Empire. The Gobi bear was nearly extirpated and now just 22-31 Gobi bears remain. The Gobi Bear Team is in a race against time to find a path to recovery for this cultural icon of the desert.

Gobi bears, the ancestral lineage of the Brown or Grizzly Bear, are classified as critically endangered. They are shy and very difficult to capture. Ten bears were fitted with GPS satellite radio collars. Our genetic census revealed 8 females and 14 males, which has provided an invaluable insight into understanding the needs of this bear.

The Gobi bear is prevented from regaining its’ ancestral land to the north, because what once was suitable bear habitat is now over-grazed by some 42.2 million head of goats, sheep, horses and cattle. The Gobi bear and Mongolia itself is further imperiled due to the invasion of the world mining industry.

Solutions:
- Created a student curriculum and teaching guide to introduce bear ecology to the region’s middle schools
- Donated 25 computers outfitted with GIS programs
- Armed with current research, we hope to empower the locals to preserve their nomadic culture and reinforce their understanding of this fragile environment

Photographs from the project were exhibited at the Center for the Arts in Jackson Hole in February 2011
X-ray displaying lead ammunition fragments (top) vs. copper ammunition (bottom) in ballistics gel which mimics large game flesh. Unlike copper bullets, lead bullets leave many shattered pieces.
**Lead in Wildlife**

*Education and research to limit toxic lead in wildlife*

Each year in North America, hunting practices leave 3,000 tons of lead in the environment. Lead is toxic and has been banned from many applications, including paint and gas. Ingested lead has many immediate and cumulative effects to organisms. Examples include: damage to the brain and nervous system, decreased liver and kidney functions, and can even cause death.

A single lead rifle bullet sheds 130 very small fragments upon impact. These remain in the meat and gut piles left for scavengers. Our studies have linked the use of lead-based ammunition during the hunting season in Jackson Hole to harmful blood lead levels in ravens and eagles.

An outreach and education program began in 2009 in which we offered free or discounted non-lead ammunition to hunters. After only three years, roughly 50% of hunters in Grand Teton National Park now use non-lead ammunition. We have also measured a corresponding decrease in blood lead levels in both eagles and ravens.

Current Findings:
- Hundreds of eagles are attracted to Jackson Hole for the hunting season every fall, some from central Canada
- Increasing the use of non-lead ammunition reduces the lead levels of eagles, ravens and the environment

*2005-2010: Lead harvest versus eagle blood lead levels. The increased use of non-lead ammunition correlates with a decline in blood lead levels in eagles.*
As we alter our landscapes Osprey, Red-Tailed Hawks, and Bald Eagles may alter their migrations in response. To safeguard these species, we are examining migration, when, where, and how far they travel. Viewed as local residents during the nesting season, some birds travel up to two thousand miles during the winter season. It is also important to characterize important stopover habitats.

Craighead Beringia South and Grand Teton National Park are studying these migrants as they can give an early warning to the condition of their environments. Osprey typifies healthy rivers, lakes and streams. Red-Tailed Hawks and Bald Eagles often reveal evidence of toxins used in the environment.

Current Findings:
• The study has documented local Ospreys wintering in Louisiana, Mexico, and Cuba
• Red-Tailed Hawk adults migrate up to one month prior to their nestlings
• Bald Eagles from all across central Canada migrate to Jackson during the hunting season

Opposite: As juvenile Osprey mature, their eye color changes from orange to bright yellow.
The Upper Snake River is the heart of a region recognized by the world as one of the unique and biologically intact wilderness ecosystems. This area showcases how multiple resources can be managed to meet diverse objectives. Craighead Beringia South’s cougar project is an exemplary example of how a small organization provides the critical information that informs the public and influences the policy making process.

For eleven years the cougar project has investigated this secretive large cat, making this one of the longest intensive cougar projects ever undertaken. Education and outreach activities include students participating with researchers in the field and analyzing real data. We are continuing our study of the feeding ecology, demographics and interspecific interactions of cougars, wolves, bears and man. To help agencies manage this population into the future we are also comparing the cost and effectiveness of non-invasive monitoring methods, such as remote cameras.

Current Activities:
• Comparison of non-invasive survey techniques:
  - winter track surveys (ground and aerial)
  - genetic surveys (scat and hair sampling)
  - remote cameras
• Hogan Films and National Geographic produced and aired the film, American Cougar
• Since the year 2000 (with the arrival of wolves and bears) 93 cougars have been marked and tracked to study births, immigrations and deaths
• Over 700 cougar kills have been visited and analyzed for prey selection and kill rates to understand their impact on prey species

Opposite: Cougar kittens are born with blue eyes and at six months of age they change to green (example above).
Decades of habitat loss makes life difficult for the Greater Sage-Grouse. The most recent threat comes from large scale energy development and controlled fires throughout sagebrush habitat.

Craighead Beringia South’s intensive field work on the ecology of sage-grouse in the Jackson Hole area will support future graduate studies and provide the data to national and regional management agencies.

Two graduate students will build upon our 7 year dataset utilizing 41,000 sage-grouse locations and 300 tissue samples. One study will use genetic analysis to determine if the Jackson Hole population is an isolated population which will demand careful management considerations. Another study will use seasonal bird locations to model critical sage-grouse habitat and identify vital areas for preservation and restoration.

Current Findings:
• Preliminary studies show the sage-grouse in Jackson Hole are genetically isolated from all surrounding populations
• Winter habitat is a limiting factor for sage-grouse survival

Opposite: Male Sage-Grouse.
Eagles and Energy Development

Caught in the middle

Are wind farm and natural gas developments wildlife friendly? These new technologies have created challenges for safeguarding our wildlife. Eagles may provide us some insight.

As energy development intensifies across the West, we are increasingly concerned about wildlife conflicts. We have studies in Central and Eastern Montana, Southern Wyoming, and on the Pinedale Anticline, one of the largest natural gas fields in the world. By acquiring an intimate understanding of eagles’ use of their landscape and nesting behavior, we hope to offer constructive suggestions for future energy developments.

Current Activities:
• Large numbers of Golden Eagles winter on the Pinedale Anticline, Wyoming
• Three nesting Bald Eagles are outfitted with transmitters and we plan to outfit more
• Nationally, it appears migrating Golden Eagles are declining, but there are many stable breeding populations

Opposite: Female Bald Eagles are generally 15-20% larger than males.
Approximately 425 students from the Jackson Hole community participate in our educational programs.

Presented with a trunk full of skins and skulls, radio telemetry equipment, and track templates, second grade students explore nature with a wildlife biologist. While in the field students record their observations in journals.

The Cougar Posse Program introduces fourth grade students to five challenges as they learn about the natural history of cougars, cougar research, cougar kittens, animal tracks, and water conservation.

The Integrated Wildlife Education Program provides high school students the opportunity to conduct fieldwork alongside biologists, including setting traps for capturing Bald Eagles and tracking mountain lions via snow tracks and radio telemetry. In the classroom, students analyze raw data collected on the Lead Project and create descriptive charts and maps to compare blood lead levels in eagles associated with Jackson Hole’s elk harvest data.

The program also directs students to interpret current scientific papers. They are exposed to scientific language to learn how to write abstracts and to justify their personal positions on topics such as energy, biodiversity, land management and water conservation.

In the summer months, CBS offers internships in collaboration with Jackson Hole High Schools. Interns shadow avian researchers, cougar researchers, photographers and graphic designers as they develop new transmitters, track cougars, and create educational apps about local natural history.
Thursday 9:30 PM
43.156°N, 97.817°E Ridge west of Uushgiin Ulaan

Mazaalai, Mazaalai! Our Mongolian colleagues were as excited as we. Our small group had just crested a ridge in the early dark of evening, a full moon casting a grey light over our shoulders illuminating a female Gobi bear and her yearling on a rock talus slope, a hundred meters away. Both had their head and shoulders deep in a hole from which rock and dust was being ejected. This critically endangered bear was digging its evening meal, the large deep root of wild rhubarb. We were observing two individuals from an entire population of only 22 to 31 animals that eked out a tenuous existence in the heart of one of the most inhospitable quarters of the world, the Great Gobi Desert.

- Excerpt from Derek Craighead’s journal

Please visit our website for future Notes From the Field www.beringiasouth.org
Research Partnerships

Collaborating for Wildlife

Universities:
University of Montana, The Montana Golden Eagle Project, Sage Grouse Habitat and Movement Modeling
University of North Texas, Sage Grouse Genetic Relationships in the Jackson Hole, Gros Ventre and surrounding regions
Utah State University, Cougar Non-Invasive Monitoring Project

Organizations:
National Science Foundation, Research, Design and Development of GPS Transmitters
Yellowstone Ecological Research Center, Sage Grouse Habitat and Movement Modeling
Teton County School District, K-12 Education Program
Hayden-Wing Associates, Raven Project
Raptor View Research Institute, Eagle Project
City Kids Wilderness Education Program
Nature Mapping, Red-Tailed Hawk Citizen Science
Panthera, Teton Cougar Project

Agencies:
Grand Teton National Park, Osprey, Red-Tailed Hawk, Sage Grouse, Teton Cougar and Lead Projects
U.S. Forest Service, Wyoming, Idaho, Montana and Kansas
National Elk Refuge, Lead, Education and Teton Cougar Projects
Wyoming Game and Fish Department, Jackson, Wyoming
Bureau of Land Management, Montana, Eagles-Energy Project
Montana Fish Wildlife and Parks, Eagles-Energy Project

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For more information, please visit www.beringiasouth.org
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2011 SUMMARY

Distribution of Project Funds
Research and Education Programs Supporting the Natural Environment
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