

# NRCC News

bridging science and policy to advance conservation

annual newsletter

fall 2013

Let us think on a greater scale.  
Let us not have those of the future decry  
our smallness of concept and lack of foresight.

*Adolph Murie*



*Photo: David Cherney*

New Administrative Director	1	Reports from the Field	4-10
New Research Associates	1-2	Fresh Ideas in Bear Management	11-12
Summer Research Reports	3	New Carnivore Book Coming Out	12

## FROM THE BOARD PRESIDENT

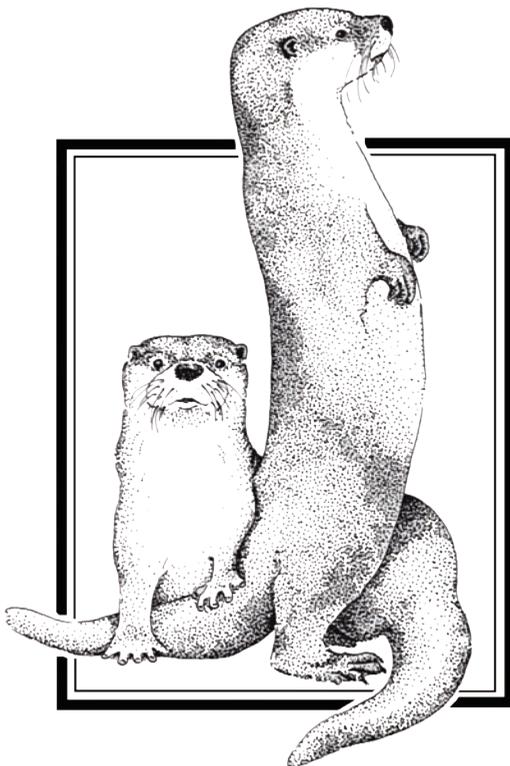
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*Peyton Griffin, NRCC Board President, and Lance Craighead, NRCC Board Vice-President*

**“NRCC provides a home for creative, independent people to try their hands at conservation entrepreneurship.”**

*Seth Wilson, NRCC Research Associate*



I hope you enjoy this annual snapshot of the productivity and innovation of NRCC’s network of professionals. Our people are on the ground gathering data on animals such as wolverines and bears, and they are also in town halls, boardrooms, and classrooms working to make conservation more effective. NRCC is unique in that our people see both the forest and the trees—to borrow a much-used metaphor—and they’re at work at both levels to find new ways to make a practical difference for wildlife and human communities.

In this issue of *NRCC News* you’ll meet our new administrative director, 5 new research associates, and 6 visiting professionals and interns who worked with NRCC last summer. You’ll also hear what’s new with some long-standing NRCC projects.

Former executive director Jason Wilmot and research associate Rebecca Watters went beyond their previous research and experience with a 230+-mile trek through Mongolia searching for wolverines. This adventure stimulated Jason to leave the office altogether and get back in the field. We thank Jason for a decade of outstanding leadership marked by many successful projects and partnerships, and we look forward to exciting news from afar as he reengages with his own research as an NRCC research associate.

We welcome Maggie Schilling as our new administrative director. She brings a wealth of experience from land trusts, environmental education, and land-use planning as well as a master’s degree from the University of Michigan’s School of Natural Resources and Environment. Many of you may already know Maggie and her family since she’s lived and worked in Jackson for many years.

As I wrote this letter, I learned of the death of long-time research associate Lucina Hernández Laundré. She accomplished so much as a teacher and researcher, contributing to our understanding of cougars, coyotes, wolves, deer, bison, elk, bighorn sheep, rodents, and interactions between plants and animals in Yellowstone and the deserts of Mexico. Her loss will be felt by many, and we extend our heartfelt sympathy to her family.

In this issue you’ll see listed the many supporters and partners who are invaluable to our work. Thank you all! And if you’re new to NRCC, please consider joining us in this vital work by returning the enclosed envelope or by logging on to [www.nrccooperative.org](http://www.nrccooperative.org).

Peyton Curlee Griffin

Board President

## NEW ADMINISTRATIVE DIRECTOR MAGGIE SCHILLING

I am thrilled to have joined the NRCC family as the new administrative director. My background is in natural resource policy, with an emphasis on land conservation and planning. I have lived in Jackson for more than a decade and strive to play a positive role in both the human and natural communities of the area. My husband Brian and I feel blessed to be raising our two small children here.

I look forward to continuing to advance NRCC's unique work in support of pragmatic, effective problem solvers in the years ahead. I hope you will feel free to call or stop by the office any time with any questions, comments, or ideas.

*Maggie Schilling*  
[maggie@nrccooperative.org](mailto:maggie@nrccooperative.org)



## 5 NEW RESEARCH ASSOCIATES JOIN NRCC

**W**e welcome these five new associates whose breadth of work, from science communication to human-wildlife coexistence, reflects the diversity of the NRCC program.



*Nina Chambers*

**Nina Chambers** is a science communicator who works to make science accessible to decision makers and the public. Current partners include the National Park Service, the Center for Large Landscape Conservation, and the International Sonoran Desert Alliance.

Nina holds a M.S. in resource recreation and tourism from the University of Idaho, and a B.S. in wildlife biology from Michigan State University. Contact Nina at [nchambers@bresnan.net](mailto:nchambers@bresnan.net).

**NRCC provides a home for innovative research professionals working to make a practical difference in the Northern Rockies and around the globe.**



*Benjamin Chemel*

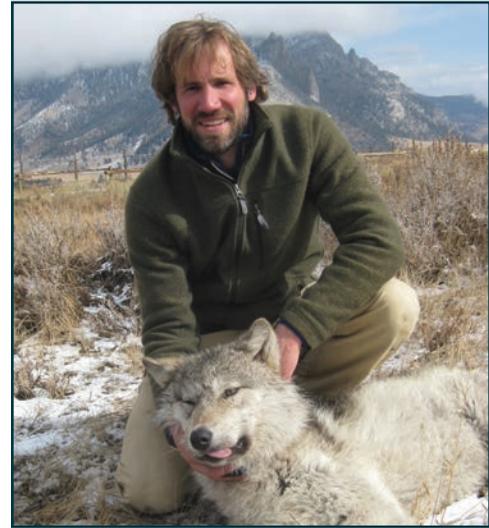
**Benjamin Chemel** is a botanist and ecologist who works with the National Ecological Observatory Network (NEON). NEON was established by the National Science Foundation to create open-access ecological data for the North American continent. He has extensively studied invasive species and the impacts of agricultural and natural resource development land management practices.

Ben received his B.S. from the Pennsylvania State University and a Ph.D. from Purdue University. Contact Ben at [dr.chemel@gmail.com](mailto:dr.chemel@gmail.com).

## 5 NEW RESEARCH ASSOCIATES JOIN NRCC

**Arthur Middleton** studies the ecology of elk migration and the behavioral interactions of elk and wolves in northwest Wyoming. He is also leading a project to study puma-camelid-condor interactions based in San Guillermo National Park, Argentina, next to two of the world's largest gold and silver mines.

Arthur is a postdoctoral fellow at Yale University, having completed his Ph.D. at the University of Wyoming. He and photographer Joe Riis were recently awarded the Camp Monaco Prize to help fund their work on Yellowstone elk migrations. Arthur received a bachelor's degree from Bowdoin College and a master's degree from Yale. Contact Arthur at [arthur.middleton@yale.edu](mailto:arthur.middleton@yale.edu).



*Arthur Middleton*

**Clay Neilsen** has studied cougars in eastern North America, maned wolves in Paraguay, and jaguars in Cerro Hoya National Park, Panama. He has also studied attacks on humans by tigers and leopards in India in order to find ways to mitigate human-wildlife conflicts. Clay serves as the director of scientific research for the non-profit Cougar Network, is a member of the IUCN Species Survival Commission Cat Specialist Group, and is an associate professor at Southern Illinois University Carbondale.

Clay obtained his Ph.D. from Southern Illinois University Carbondale, his M.S. from SUNY-ESF, and his B.S. from the University of Nebraska. Contact Clay at [Kezo92@siu.edu](mailto:Kezo92@siu.edu).



*Clay Neilsen*

**Taza Schaming** is studying the impact of whitebark pine mortality on Clark's nutcrackers in the Greater Yellowstone Ecosystem. Clark's nutcrackers and whitebark pine are dependent on each other and both are experiencing dramatic declines. Whitebark pines play a critical role by helping to retain snow—and thus drinking and irrigation water for people—on the upper slopes of the Rockies and by providing high-fat, high-energy nuts that many animal species depend on.

Taza is a Ph.D. candidate at Cornell University, where she also earned her M.S. She received a B.S. from Tufts University. Contact Taza at [tds55@cornell.edu](mailto:tds55@cornell.edu).

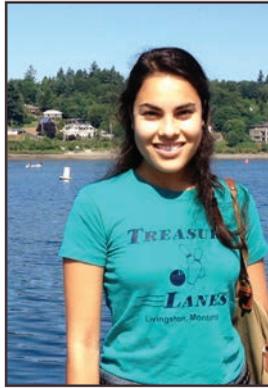


*Taza Schaming*

## SUMMER RESEARCH REPORTS



Alice Buckley & Evi Steyer



Breanna Lujan



Lindsey Larson



Lily Sweikert



Marian Vernon

**N**RCC continued its successful professional development program during the summer of 2013 by hosting six professional research and intern projects.

**Alice Buckley, Breanna Lujan, and Evi Steyer**, all students at the Yale School of Forestry and Environmental Studies, spent the summer working out of Livingston, Montana, with the People and Carnivores program of NRCC and Louisa Willcox and David Mattson. Evi explains, “Our project explored the perspectives of more than 40 key players involved with bear management. Interestingly, our interviews, which had originally centered on attitudes toward bears themselves, began to shift their focus toward the relationships between different organizations and individuals involved with bear management.” Breanna continues, “It became clear that relations between humans in the bear arena were much more strained than interactions between bears and humans. However, we found that people from ‘opposing’ camps have a lot more in common with each other than they realize due to a lack of communication among key players.” Alice concludes, “It became apparent that these similarities could offer untapped opportunities for collaboration. This realization aligned exactly with the mission of NRCC: to strive for the conservation of species, ecosystems and—just as important—human communities.”

**Lindsey Larson** joined the NRCC home office in Jackson to assist with communications and organizational development. She recently completed the Yale FES master’s degree in environmental management program and will begin her MBA this fall in the Yale School of Management. Lindsey says, “I had many ideas for how NRCC could increase its visibility and impact but had to think strategically about how this could be achieved given limited staff time and money. NRCC is at an interesting spot in the arc of its evolution; it is mature but still small and nimble enough to accommodate change. Its capacity and depth

of expertise are both unique, and it has built a powerful network of conservation innovators. The fact that it’s an effective organization with capable people at the helm made it an easy and exciting nonprofit to work for!”

**Lily Sweikert** spent the summer on the eastern plains of Colorado, conducting research on ranching communities and wildlife conservation, especially prairie dog colonies, in partnership with the Denver Zoo. This is part of her master’s degree in environmental science at Yale FES. Lily explains, “Having spent 2 years working on prairie dog conservation and developing a love for prairie dogs, the prairie ecosystem, and the Great Plains, I wanted to see if I could find new ways to reconcile the parties and advance wildlife conservation. Through these interviews, I learned about ranching operations and culture, common concerns, bottom lines, and their suggestions for collaborative conservation. I now have a much better understanding of ranching communities and am developing recommendations for positive ways forward for all parties.”

**Marian Vernon** was based in the NRCC office, where she conducted thesis research in pursuit of her master’s degree in environmental science from Yale FES. She studied the elk reduction program in Grand Teton National Park. Controversy has surrounded this hunt since its inception, but it rose to prominence recently when an elk hunter shot a grizzly bear in self-defense. As Marian notes, “Ultimately, the ‘problem’ with elk management involves value disputes among people who disagree about how wildlife resources should be managed and who should have the authority to make such decisions. I hope to find areas of common ground, which can be used to develop management approaches that are more reflective of the public interest.”

*For more information on each project, please see the “Summer 2013” link on [nrccooperative.org](http://nrccooperative.org).*

# GREATER YELLOWSTONE AMPHIBIAN MONITORING

*Debra Patla, NRCC Research Associate*

We are investigating the status and trends of native amphibian populations in Grand Teton and Yellowstone National Parks. In 2013 we completed the 8th consecutive year of this collaborative effort, which is supported by the National Park Service (Greater Yellowstone Network, Inventory & Monitoring Program) and the US Geological Survey. NRCC has been an essential partner since 2010, providing annual field data under a cooperative agreement with the federal agencies.

Every year we re-visit potential breeding areas within a set of watershed units (or catchments) distributed widely across the two parks. At wetland sites within the catchments, we conduct surveys in early summer to identify active breeding sites, as shown by the presence of frog and toad tadpoles and salamander larvae.

Unfortunately, in the past two years we have found shrinking and vanishing wetlands. In 2012 we found 25% of the sites dry or too shallow to support amphibian reproduction and a similar proportion in 2013. This is a dramatic change from 2011, when only about 4% of the potential breeding sites were dry.

Most affected by the dry conditions is the boreal chorus frog, which suffers a contraction of breeding sites following winters with meager snow. The other species—Columbia spotted frogs, boreal toads, and tiger salamanders—rely less on the seasonal wetlands that are most

vulnerable to drought. The effects of climate change in our region thus may fall most heavily on the back of the tiny boreal chorus frog, a species renowned for its vigorous calls that resound through mountain valleys on spring nights.

One of the highlights of our recent work is demonstrating the importance of beavers for amphibians. In two catchments where beavers recently built dams, boreal toad tadpoles appeared for the first time since this monitoring project began and quickly colonized the new breeding habitat. Other amphibian species also benefit from beaver ponds, but toads are relatively rare in the GYE, so the rapidity of the toad's response to new beaver dams is a significant finding. It underscores the importance of long-term monitoring, which allows us to formally document critical habitat relationships that were previously glimpsed through anecdotal observations.

To determine if the status of amphibian populations is changing over time, we are using occupancy modeling. Our ongoing analysis will compare amphibian occupancy of the GYE to two other western national parks, Glacier and

Rocky Mountain, and show how climate-driven wetland changes might affect amphibians over the long term.

We look forward to continuing the monitoring in 2014. As late summer rains drench the parched earth and winter approaches, we hope to see depleted wetlands recover in time for next year's frog breeding season. May the rain and snow fall in abundance!



*Janene Colby and Scot Martin survey for amphibians in Grand Teton National Park. Top: A Columbia spotted frog. Photos: Deb Patla*

*The views and conclusions contained in this document are those of the author and should not be interpreted as representing the opinions or policies of the U.S. Government. Mention of trade names or commercial products does not constitute their endorsement by the U.S. Government.*

# BLACKROCK: BIOLOGICAL HOTSPOT AND HOTBED OF COLLABORATION

*Erin Muths, Ph.D., Project Partner*

Since 2003 I have been leading a team of researchers investigating amphibian decline at a study site on the Blackrock Ranger Station compound on the Bridger-Teton National Forest. We currently collaborate with the U.S. Forest Service (USFS) and the Wyoming Department of Transportation (WYDOT) to study population demographics and disease ecology for the four species of amphibians that reside in ponds and oxbows along the Buffalo Fork River in the USFS Blackrock compound area. My research team includes Drs. Steve Corn and Blake Hossack (USGS Northern Rocky Mountain Science Center) and Dr. David Pilliod (USGS, Forest and Rangeland Ecosystem Science Center).

Our research focused initially on an oxbow pond separated from the Buffalo Fork River by levees, where boreal toads (*Anaxyrus boreas*), Columbia spotted frogs (*Rana luteiventris*), boreal chorus frogs (*Pseudacris maculata*), and barred tiger salamanders (*Ambystoma mavortium*) were breeding. However, natural and human-made changes to the immediate landscape have also caused changes to breeding habitat and increased the scope of our research.

For example, construction on Wyoming Hwy. 26/U.S. Hwy. 287, which disturbed existing wetlands, included establishing a mitigation site (as required by federal and state laws). The mitigation site, located near our existing research site, appears to be more valuable to amphibians than we first thought. Heavy, late-spring runoff in 2011 and 2012 breached the levees between the oxbow and the river. We think these natural events wiped out amphibian breeding efforts at the oxbow, leaving the mitigation site as the only viable reproduction site in these years. As a result, after only two years since establishment, all four species that bred in the oxbow are now using the mitigation site to breed.

These circumstances presented several interesting avenues for research as well as mitigation and served as the starting point for collaborative research among USGS scientists, NRCC, and the USFS in 2012. Funding for 3 years from WYDOT has allowed us to assess mitigation sites and natural sites to compare differences in habitat, demographics of amphibian species, insect communities, disease presence and impact, and amphibian occupancy across the immediate landscape. We finished these tasks in 2013 and are now analyzing the data. Our goals are to track multiple populations of amphibians over



*Oxbow off the Buffalo Fork River (post flooding) at the USFS Blackrock Ranger Station Compound, 2011. Photo: Deb Patla.*



*Spotted frog. Photo: Deb Patla.*

time to better understand population-level host-pathogen dynamics, assess potential shifts in occupancy across the landscape, and determine the efficacy of the mitigation efforts at Blackrock. Our results will support Forest Service management of the amphibians and help refine protocols for future mitigation efforts required of WYDOT.

In a larger context, understanding how amphibians use previous natural habitat and mitigation sites and how to create suitable wetland habitats that sustain amphibian populations and increase resilience to catastrophes and diseases will be fundamental to conservation of these sensitive species.

*Erin Muths works with the U.S. Geological Survey,  
Fort Collins Science Center.*

# MONGOLIAN SKI EXPEDITION SUCCESSFULLY TRACKS WOLVERINES

Results Applicable to U.S. Rockies and Beyond

*Rebecca Watters, NRCC Research Associate*

**T**he only way to understand a species like the wolverine in a country such as Mongolia is to make a commitment to live, at least for a time, like the animal itself: go into wild country, travel vast distances on foot, sleep in the snow, survive on minimal calories, and test your ability to respond to hardship with wolverine-like toughness.

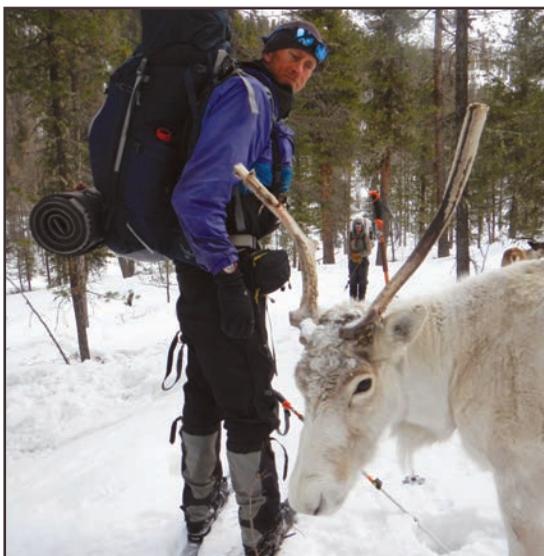
In March 2013 I embarked with Jason Wilmot—then the executive director of NRCC and now a research associate—on a month-long ski expedition through the Sayan Mountains of northern Mongolia to survey for wolverine tracks and collect DNA samples. The trip would take us across 230 miles of alpine terrain that herders and hunters had identified as wolverine habitat.

I've directed the Mongolian Wolverine Project since 2009 and surveyed and conducted summer interviews in this remote region between 2010 and 2012. Herders mentioned "abundant" wolverines and showed me several pelts, confirming the species' presence, but they always directed me to come back when snow was on the ground so that I could see the tracks—and maybe the animal—for myself.

Wolverines are a naturally rare species, defending huge territories, sparsely spread across the landscape. They are never abundant, so the interviews intrigued me: why did people report wolverines with such regularity? When they talked about seeing tracks "everywhere" in the winter, what did that mean? And how could I get into the winter backcountry, in a region with no infrastructure and no support, to find out?

In 2012 I'd ventured up into the Sayan Range to meet with the director of the region's three protected areas. Tumursukh (Mongolians go by one name only) was central to bringing greater protection to the landscape where he was born and raised. With the support of local government, he helped pass a bill in Parliament designating new

protected areas that encompassed much of the Sayan Range around the Darhad Valley, the regional population center. As we talked about the upcoming ski trip and my interest in wolverines, he emphasized the need for cooperation and research partnerships to help build capacity in the new protected areas. He has worked for nearly a decade with a project based at Montana State University and feels that the scientists and managers of the GYE are in the best position to advise, train, and offer insight on turning the region into a world-class protected area.



*Research associate Jason Wilmot greets a domestic reindeer along the trail. Photo: Rebecca Watters.*

He is driven by a new sense of urgency in response to the mining boom that has swept Mongolia over the past few years, making the country's economy the fastest growing in the world. The gold rush mentality pervasive in the capital is spurring a nascent environmental movement, as industry begins to encroach on protected areas, traditional herding territories, and sacred landscapes throughout the country. The new status of the mountains where I've been working might lend more power to my work, since it can now be tied to the protected areas system and to management outcomes.

The ski expedition, sponsored by National Geographic and conducted in partnership with Bozeman-based Adventurers and Scientists for Conservation, included five team members, with enough expertise among us to venture out into the snowbound wilds of the Sayan with minimal risk. Before we set out, we all agreed that we would be lucky to find one or two sets of tracks over the course of the month, although I secretly harbored hopes of finding at least five, since the herders told me that they saw tracks with such frequency.

**Rebecca was recently awarded the Judge's Prize for her entry on Mongolian wolverines in the Jackson Hole SHIFT Festival short presentation competition. Also, don't miss "Nokhoi Zeekh: In Search of the Wolverine," a short film on the 2013 Mongolian wolverine expedition, selected for this season's Winter Wildlands Alliance Backcountry Film Festival.**

For more information on both events, see [nrccooperative.org](http://nrccooperative.org).

Forty-five minutes after we set out on our first day in the field, we found our first set of tracks and picked up our first DNA sample. Half an hour after that, we found our second DNA sample. The next day we found another set of tracks. By the third day, as we followed a third and then a fourth set of tracks over a pass and down a wild, ice-bound drainage, picking up scat and hair as we went, we'd adjusted our expectations.

During 23 days in the field, we endured snowstorms, frostbite, and endless trail breaking through deep, unconsolidated snow, watched avalanches sliding off cliffs, struggled with heavy packs, and on our last day nearly fell through the rapidly melting ice of our final river crossing. We eventually stumbled into the ger of a generous and concerned doctor named Dolma, the sole resident of a "town" marked on our map, and she ordered us to take off our soaking boots and gave us huge bowls of steaming noodle-and-mutton soup.

In his pack, as we sat barefooted and voracious by the ger stove, Jason had 33 DNA samples, plucked from 28 sets of tracks. We'd also found signs of snow leopards, wolves, lynx, martens, elk, moose, musk deer, roe deer, foxes, hares, and mink, in quantities that suggested that the wildlife populations of the Darhad, while remaining wary and resolutely invisible, are robust enough to make a comeback from years of overhunting, if they are given the right degree of protection.

Our work in Mongolia, however, has implications beyond just understanding Mongolian wolverines and working with the Mongolian protected areas system. Wolverine in the Rockies are likely to be listed in 2014 under the US Endangered Species Act, as a result of threats from climate change. The species is difficult to study in the Rockies, and scientific questions about the U.S. population remain unanswered.

Mongolian wolverines, like wolverines in the Rockies, exist in dispersed yet interconnected population nodes. It takes a number of nodes, or small groups, to make up a sustainable larger, or meta, population. The Sayan Range around the Darhad appears to represent a very robust population node, and similar reports from other mountain ranges in Mongolia suggest that the wolverine population throughout the country is healthy.



*Forrest McCarthy and Jason Wilmot celebrate the successful collection of the team's first wolverine DNA sample. Photo: Rebecca Watters.*

Continuing, comparative work on Mongolian wolverines may allow us to infer something about wolverine conservation options in the Rockies. How are Mongolian wolverines using the landscape, and what are they eating? Does the relatively undeveloped nature and low-infrastructure environment of the Mongolian lowlands offer easier dispersal options, as opposed to the more-developed lowlands of the Rockies? Do the huge herds of livestock, with high rates of winterkill, subsidize Mongolian wolverine populations? How do wolverines interact with other carnivores on the landscape? And since wolverines in Mongolia are sometimes reported in marginal habitat, can we gain insight into potential adaptive plasticity within the species? That is, can Mongolian wolverines help us understand whether wolverines in the Rockies might adapt to climate change?

All of these areas of inquiry are speculative at the moment. Our next step is to analyze the DNA samples we collected to see if they offer additional insight, and plan a return trip to Mongolia next summer for a more in-depth study of wolverines and several other alpine species. I look forward to continuing to explore the mountains of Mongolia and the U.S. Rockies and foster collaboration between researchers and conservationists in these two very similar regions.

*Rebecca Watters is the director of the Mongolian Wolverine Project.*

*Team members Jason Wilmot, Jim Harris, and Forrest McCarthy following the tracks of the elusive wolverine in the Darhad Valley. Photo: Rebecca Watters.*

### LIVESTOCK & WOLF MONITORING SEASON IN THE BLACKFOOT WATERSHED

*Seth Wilson, Ph.D., NRCC Research Associate*

People and Carnivores and the Blackfoot Challenge have teamed up again this year to offer our fifth Livestock and Wolf Monitoring program in the Blackfoot watershed. The effort is designed to reduce the risk of livestock losses to wolves by increasing herd supervision, providing human presence with cattle, and monitoring locations of wolf packs.

Our range riders work closely with livestock producers to keep them updated on wolf activity and help identify potential risks. For example, this season our riders have found several dead livestock and have reported these carcasses to area ranchers. The carcasses were removed after it was determined that the cause of death was not from predation. This type of proactive action helps to decrease encounters between wolves and livestock by removing an attractant (i.e., the carcass) that could draw wolves into an area with cattle. Additionally, it is important to identify the cause of death so we can get a better understanding of what are suspected but unconfirmed losses to carnivores versus other causes of death like disease, lightning strikes, or plant poisoning. Range riding is one way to increase early detection of carcasses on the range.

As of this writing we have had no confirmed livestock depredations by wolves in our project area in 2013. The six-year average remains at 3.6 confirmed livestock losses per year across nearly 50 ranches on about 800,000 acres. The five-year average is 3.8 wolves killed per year for cattle conflicts.

Overall, wolf numbers remain robust in the Blackfoot watershed. Currently, there are 10-12 packs, and in every year from 2006 to the present we have documented a minimum of four wolf packs. This suggests that, despite some low levels of conflict and sanctioned hunting, wolf packs are persisting in this area.

#### International Opportunities

Researchers from Slovenia have recently teamed up with People and Carnivores to work on an exciting new project to help foster natural recolonization of brown bears from Slovenia and Croatia to the southern Alps in Italy, Austria, and Slovenia.

I recently had the good fortune to visit Slovenia to begin some preliminary collaboration with what I like to call “Team Slovenia”—a great group of researchers from academia and the Slovenian Forest Service. And just this past September, members from Team Slovenia, Dr. Miha Krofel and Dr. Klemen Jerina, spent time in Montana and Utah for a week of travel, presentations, field tours, and scientific meetings. This initial exchange is generously funded by the International Association for Bear Research and Management (IBA). We will keep folks updated as our collaborations continue.

*Seth Wilson is a field director of the Blackfoot Challenge, field director of People and Carnivores, and a Visiting Fellow at the Yale School of Forestry and Environmental Studies.*



### GRIZZLIES, WHITEBARK PINE, AND CONFLICT PREVENTION

*Steve Primm, NRCC Research Associate*



**A**s we crossed a basin high in Wyoming's Shoshone National Forest, Scott leaned over in the saddle to look at the trail dust. The print beside the horse's hooves resembled the track of a barefoot child, but for the pointy heel impression. That marked the hind track of a grizzly cub.

A few paces ahead were Mama Bear's tracks on top of our inbound tracks. After several seasons in the Absaroka, the drill felt familiar: a modest jolt of adrenaline, a sharp increase in focus, and a reassuring pat on the bear spray. We watched, listened, and paid attention to wind direction. We hollered some. Most of all, we relied on the horses and mules, with their exceptional senses and strong commitment to not getting eaten.

Shortly, we came on fresh scats, indicating that these grizzlies were making use of a locally abundant crop of whitebark pine cones. Bears eating pine seeds is a vanishing phenomenon in many places of the northern Rockies, as whitebark pines are suffering widespread die-offs as a result of warming temperatures. Mountain pine beetles—native tree-killing insects, smaller than a grain of rice—have grown to epidemic numbers across the West.

For thousands of years whitebark pines evolved in cold, beetle-unfriendly locales where they had little need for insect defenses. In the past decade warmer temperatures have allowed beetles to invade the high slopes where most whitebarks grow, and the beetles have successfully killed many mature pine trees.

Here in the Absaroka Range the picture may be brighter. Sure, there were beetle-killed whitebarks all over the basin we rode through. But there are also enough live, cone-bearing trees to produce the kind of crop we used to see all over Greater Yellowstone.

And that's good news for the grizzlies: quality nutrition in a safe place. But trouble can strike wherever people and bears share space. Fortunately, here in the Absaroka backcountry,

bear conflict prevention has become a habit with most folks. For over 30 years, the national forests surrounding Yellowstone have pioneered ways to keep grizzlies in the wild and out of conflicts.

Among all the conflict prevention tools, one of the oldest and simplest still shines—the bear pole. It's just a horizontal log attached to two upright trees, maybe 18 feet off the ground. Got something you don't want bears getting into (say, 400 pounds of elk meat)? Throw a rope over the bear pole, tie onto your cargo, and hoist it up.

There are a few hundred "official" bear poles scattered around the six national forests and two national parks that make up Greater Yellowstone. Our task in the Absaroka that day was to replace one of the older bear poles, part of an ongoing effort to maintain and expand the food storage infrastructure that keeps conflicts low.

For people, the efforts have paid off in spades. Today "problem" bears are quite rare in the backcountry. Most grizzly-human conflicts these days tend to be in subdivisions, on ranches, or in surprise encounters with hunters.

This shift in conflicts reflects a few trends. First, we've gotten good at preventing conflicts in many places like backcountry campsites. Second, there are roughly 700 grizzlies in the Greater Yellowstone—a three-fold increase since the early 1990s. Third, key food sources like whitebark pine have declined, forcing those bears to range farther to find food.

As we rode on, the grizzly family's tracks veered off into thick forest, and we saw no more sign. Where the future leads grizzlies and people will mostly be up to us—on the small scale of this basin, on the larger scale of a few mountain ranges, and on the global scale of climate. With grizzlies it always pays to proceed carefully.

*Steve Primm is a field director of People and Carnivores.*



*Putting up a new bear pole on the BCCA.  
Photo: Seth Wilson*

# BALD EAGLES OF IDAHO'S PORTION OF THE GREATER YELLOWSTONE ECOSYSTEM

*Michael Whitfield, NRCC Research Associate*

Consider the challenges that face a pair of adult bald eagles in order to produce viable young. A young eagle needs about 6 months from the time it hatches to become an independent top-of-the-food-chain winged predator, 10-12 muscled pounds of flying mastery ready for a very long migration to hospitable winter environs, a flight the young eagle will make on its own. That means, working back in time, that those nesting parents must be on eggs by late February-early March—not necessarily a time of benign weather in Greater Yellowstone. As an added challenge, after an incubation of 32-35 days, the hatchlings will face the elements for about 5 weeks before they have enough feathers to adequately insulate themselves from heat or cold, and April and May can, of course, bring more weather surprises. Plus, all through the nesting season, the adults and growing young must adapt to all the threats of a human-dominated and rapidly changing environment, to say nothing of their own very competitive bald eagle society.

This is the context for our work at the Idaho/GYE Bald Eagle Research Project. We have been monitoring bald eagle productivity in Idaho's Upper Snake River watersheds for 34 years, and in that time have collected a uniquely rich database about nesting productivity, including human activity, food availability in critical periods, weather severity and related factors such as river flow or reservoir water level, and individual factors such as pair experience and levels of intraspecific competition. We have tracked many remarkable changes for bald eagles of our region. In 1983 we monitored 13 bald eagle breeding areas to learn about



productivity, band nestlings, and learn about breeding territories. In 2013 we tracked bald eagle activity and nesting success at 88 breeding areas—nearly a 700% increase in the resident nesting population!

We are also tracking the 20% of our adult nesting population that is marked—mostly eagles we banded as nestlings as far back as 1987. These long-lived adults are teaching us about juvenile dispersal, longevity, and breeding area fidelity. Eagles that survive to adulthood and beyond are incredibly valuable members of the bald eagle population. Our experiences suggest that these old birds still have a lot to teach us.

Bald eagles are no longer a threatened species in our region and are justifiably touted as a successful application of the Endangered Species Act. However, they are an excellent barometer of the health of our area's major riparian systems in a time of great change. For example, we are observing how the eagles respond to changes in early nesting season weather patterns as our climate warms. In 2011, 2008, and 2006 we saw rather dramatic nesting failures at higher elevation nest sites because of severe early spring weather. In years like 2013, when the bald eagles of our region produced at least 84 advanced nestlings, we see the effects of an early warm spring even though foul weather in late spring again impacted higher elevation sites. New nesting pairs, taking up residence in increasingly marginal habitats, are defining the boundaries of their tolerance for human activity and limited prey availability. We observe as the eagles write the next chapter of their story.

## Support NRCC through your purchase of "Dinner Bell" by William G. Smith

Thanks to the generous donation of reproduction rights by Jackson artist William G. Smith, NRCC is offering "Dinner Bell" for sale. Originally painted for Wyoming's 2011 annual conservation stamp competition, this painting was inspired by the artist's encounter with a wild wolverine in the Yukon.

These giclee reproductions are printed in archival inks on canvas, and are difficult to distinguish from the original oil painting. They come mounted on foam board for easy framing, either 12"x16" for \$150 or 18"x24" for \$300.

To order, please visit [www.nrccooperative.org/dinnerbell.html](http://www.nrccooperative.org/dinnerbell.html). All funding from your purchase goes to support NRCC's research and conservation efforts for wolverines. To see more of William Smith's tremendous artwork, visit Mountain Trails Gallery in Jackson, or see <http://www.williamgsmithart.com>.

A huge thank you to Bill for this terrific donation to NRCC!



## OF BEARS, CHESS, AND CHECKERS

*Michael L. Gibeau, NRCC Research Associate*

**M**ost of us got into the wildlife business because of our love of nature and animals. I know I certainly did. But something fundamentally rearranged the way I think—not just about biology, not just about bears, but about the way I think about almost everything I do in my life. I've come to understand a different way to solve problems—a more comprehensive one that I'd like to share with you.

Let me tell you the story of how my thinking changed. I worked in Banff National Park in Canada with grizzly bears for many years. Through my formal education in wildlife biology, I believed that scientific management was the solution to many of our problems. I was a classic “collar and foller” kind of guy, where you collected data, wrote reports, and published papers. And when faced with a problem that I couldn't seem to solve, like most biologists, I just collected more data. But, of course, more study really doesn't address the fundamental problem. I came to understand that I was playing checkers when the situation called for playing chess.

So I've had to learn how to play chess. I've been lucky enough over the last decade or two to have mentors at NRCC and Yale School of Forestry and Environmental Studies, especially Susan Clark, who have shown me how to be a better problem solver.

About a decade ago, things started to unravel for me and for Parks Canada, my employer. I knew I was doing good science. I had a long list of published papers in peer-reviewed journals. Yet I was getting creamed in the arena of public opinion. A debate erupted in the popular media spanning several years that not only questioned the science, but openly attempted to discredit me as the scientist. I asked myself, “What on earth am I doing wrong?” We were getting the science right. Wasn't that enough? Apparently not.

What was happening was that I was undertaking the science in a totally a-contextual way. Like many wildlife biologists, I was unaware of the larger social debate, where the science of grizzly bears was just the self-justification to promote various special interests. Grizzly bears were being used as a symbol by both sides in the age-old debate in national parks about preservation versus development.

The controversy was unsettling enough that I went searching for an alternative. I wanted to do something different from the way agencies typically engage the public, which is to try to either inform or influence people. I wanted to move to a more participatory form of engagement. The managers at the time were really interested in trying something different because they too were fed up with controversy.

And so we embarked on that new road in the early 2000s with both the blessing and the encouragement of managers of Parks Canada in Banff. Using a book by Susan Clark as our guide, we brought together a group of people in Banff to try a different style of interaction than the stale government consultation process.

Basically, the policy sciences framework that we adopted encouraged us to be more comprehensive and fully contextual as we went about problem solving. It helped us to have a civil dialogue about what the real problem was. This framework has been around for 60 or 70 years. It's widely known in law, international relations, and public health, but hardly anybody had ever heard about it in the arena of resource management.



**“We learned that you can often get the science right and still not get a good decision.”**

Central to this framework is an understanding of people's differing values, which are at the heart of our motivation to do the things we do. People's actions can be

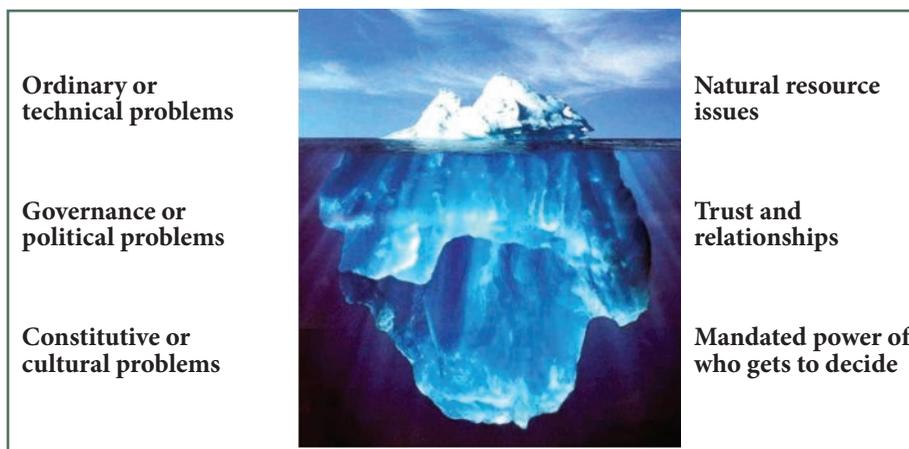
explained by their either being deprived of particular values or seeking more of certain values. This is precisely the point where I started trying to understand how other people thought by asking the question, “What is it that that person is really being deprived of, or seeking more of?” As my understanding of values broadened, it became evident there are two values in particular that are more significant than the others. One that has disproportional influence is power, something that governments tend to sequester and maintain. The other is respect: withholding or depriving people of respect is an all-too-common tactic in personal and group relations.

The newly formed problem-solving group in Banff began its journey by acknowledging and trying to understand one another's values and perspectives. Group momentum built as decisions were agreed on and implemented by the government, especially for some of the more straightforward problems. As our group became more and more comfortable working together, we realized that there were several layers of problems at play.

Of course, the grizzly bears were the obvious superficial issue, but more deep seated was the problem of trust and relationships with one another. Even more hidden from view, and something we rarely ever talk about, is the mandated decision-making process whereby the federal and provincial agencies hold all the formal power (see figure). But everyone recognized that our group was different: the agency was sharing power and the group was making joint decisions. Group cohesion tightened, we picked off all the low-hanging fruit and resolved many long-standing issues, and for a number of years there was little controversy surrounding grizzly bears in Banff National Park.

I wish I could just end the story here, heralding the merits of participatory decision making, but that is not how it has ended up. Our group collapsed and was disbanded. The park superintendent retired and was replaced. That simple act of succession changed the distribution of power. Trust eroded. We went from a civil dialogue about our common interests to everyone promoting their own special interests. Grizzly bears once again became the symbolic instrument people used to beat one another over the head with about the issues of preservation vs. development, about trust and relationships, and ultimately about who gets to decide.

For a brief period in Banff a broad cross section of citizens had a taste of interdisciplinary problem solving and participatory decision making. One of the keys to success was to create a forum for civil and open dialogue where



*Real problems are often hidden beneath superficial issues.*

power and influence were shared. Most participants felt that we were more comprehensive in our approach and truly identified the real problems. As a group we learned that you can often get the science right and still not get a good decision.

Which is why the work of NRCC is so critical. New ways of communicating, problem-solving, and influence sharing—as well as getting the science right—are vital to advance conservation across the globe. I'm proud to be a part of the NRCC community, and I look forward to continuing to work on these challenging issues in the years ahead.

*Michael Gibeau is the conservation coordinator for Southwest Alberta, The Nature Conservancy, and former carnivore specialist, Parks Canada. This article was originally printed in longer form by The Wildlife Society in The Wildlife Professional, Spring 2012, pgs. 62-64.*

**New book from the University of Chicago Press**  
**Large Carnivore Conservation: Integrating Science and Policy in the North American West**

In this informative new book, co-editors Susan Clark and Murray Rutherford discuss diverse efforts across western North America where people are trying to improve decision making for conservation. The cases also seek reduced conflict.

The cases in the book, due to be published in 2014, include Arizona's management of cougars, a comparison of wolf management in two Wyoming communities, co-management of grizzlies in Yukon, wolf management on ranchlands in Alberta, coexistence with grizzly bears in Montana, and a prototype for grizzly management in Banff National Park. All these cases are about conflict over people's



Photo © Thomas D. Mangelsen

values, how people interact, and how management decisions are made. The lessons are practical, broadly relevant, and are directly helpful to the wildlife conflicts we see throughout the Northern Rockies and beyond.

The book's goal is to improve wildlife conservation and promote successful coexistence between large carnivores and people. We hope the book will be widely discussed and used locally and globally. Many people and organizations helped in this project, and we greatly appreciate their support.

*Susan Clark, Ph.D., is an adjunct professor at the Yale School of Forestry and Environmental Studies.*

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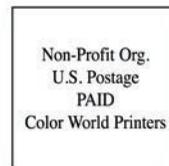
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