

NOTES FROM THE FIELD

Shared Stewardship for Bison Restoration

A survey in 1905 revealed that of the 40 million freely ranging bison in North America, only 1,089 remained. In response, Theodore Roosevelt and William Hornaday launched the American Bison Society (ABS), making bison the poster child of conservation at that time. Creating wild bison reserves and stocking them with bison from WCS's Bronx Zoo, the ABS considered their work done, and the organization was disbanded in 1935.

The ABS was resurrected in 2005, with Keith Aune, WCS Bison Coordinator, guiding it toward a renewed goal to "restore bison ecologically, not just in pens, but in the larger landscape where they will function as the keystone species of the grasslands," said Aune.

Today, bison conservation and management is rife with complex issues that dampen efforts to establish wide-ranging bison herds able to fulfill their keystone role on prairie grasslands. In order to not only continue bison restoration, but to do so in a way that ultimately benefits the landscape, species, and people who live with and around bison, the ABS gathered this year to explore an important theme of "Shared stewardship."

Over three days nearly 150 scientists, managers, tribes, and citizens working on bison-related projects from Alaska to Mexico gathered in Big Sky, Montana to listen and learn about bison conservation challenges, successes, and lessons learned. Given his extensive career steeped in these issues, Aune recognizes that: "We've developed the science to support bison restoration; now we need to focus on how we do this work across multiple jurisdictions."

Ecologists at this meeting stressed the need to adaptively manage larger bison herds at bigger scales, testing hypotheses aimed at better understanding threshold effects that bison restoration may have on different ecological communities and processes across landscapes. Meanwhile, managers wrestled with the complexity and intensity of bison management as it links to scale and the human context of landscapes.



Jeff Burrell © WCS



Looking at bison through a more value-laden lens, those focusing on the economics suggested cost-benefit analyses to weigh economic trade-offs. Whereas those working

to understand the social and cultural aspects of bison are particularly concerned by societies' increasing disconnect to nature and fears that bison threaten ranching, imposing near insurmountable barriers to bison restoration.

During two days of rich, open dialogue about the challenges of bison restoration, a healthy synergism among a diverse group was generated. The outcomes of these discussions will be published as a unified vision to support future bison restoration efforts.

According to Aune: "This practical guidance book pulls together all of the concepts explored in the meeting—not just the science. It includes the social, political, and public engagement pieces necessary to take the next steps in bison restoration." The ABS is committed to promoting shared stewardship approaches to ensure the advancement of bison restoration efforts on appropriate landscapes.



INSPIRING CONSERVATION: NORTHERN FOREST ATLAS PROJECT

Within the Northern Forest of the northeastern United States and southeastern Canada lies a triumphant story of ecological recovery. Following a century of timber and wildlife over-harvesting that nearly destroyed the region's natural resources, efforts to reverse this downward trend got traction. Today, Bicknell's thrush can be heard in the high mountains, moose are regulars in and around thousands of lakes and ponds, and black bears have room to roam between forested habitats rich with resources. Though it is one of the largest concentrations of intact temperate forests in the world, the Northern Forest has an uncertain future. Facing threats such as climate change, the region needs to build on its history of recovery to thrive into the future.



The Northern Forest Atlas will feature landscape photos taken with AirCam and annotation to illustrate the interplay of vegetation types within a landscape.

Leading this charge is WCS Ecologist Jerry Jenkins. After four decades studying and surveying the Northern Forest, conducting botanical and ecological inventories on more than half a million acres, Jenkins is undertaking a creative approach to spread his knowledge and passion for this region: The Northern Forest Atlas Project. Drawing on his past work, including the award-winning publication, *The Atlas of the Adirondacks: A Geographic Portrait of the Adirondack Park*, Jenkins' newest work is intended to expertly guide the next generation of naturalists, biologists, and conservationists to protect and steward this landscape.

According to Zoë Smith, WCS Adirondack Program Director: "The Northern Forest Atlas will set a new standard for natural history interpretation, serving as much more than a field guide. Jenkins is poised to create the most innovative work on the Northern Forest that has yet been produced."

Jenkins ingeniously illustrates and annotates specimens of the Northern Forest while using straight-forward text and diagrams to explain complex ecological processes. Both scientifically-detailed and visually stunning, the Atlas will celebrate the richness and beauty of one of the great forests of the world, inspiring the protection of this valuable natural resource for decades to come.

RETURN ON YOUR CONSERVATION INVESTMENT

Few can deny the feeling of calm contentment a walk in nature provides—the crisp air, chipmunks caching food for the winter, rustling in the brush, the crunch of leaves as you step along the trail. Some people are willing to pay more for the opportunity to step into this sort of reprieve right out their door, according to Dr. Sarah Reed, WCS Conservation Scientist, and colleagues in their recently published assessment of the economic value of open space in housing developments in the *Journal of Sustainable Real Estate*.

Dr. Reed's team compared 2,222 home sales in five counties in Colorado from 1998 to 2011. The properties in this study specifically incorporated protected open space into the design of a neighborhood, recognizing conservation developments as a specific approach to the design, construction, and stewardship of a development that protects natural resources. They compared conservation developments that set aside an average 64% of land as open space and traditional rural subdivisions that set aside a small 4.9%. Based on their analyses, homes in conservation developments sold for 29% more than homes located in conventional residential projects.

In a *Wall Street Journal* article reporting on their findings, Dr. Reed said: "For a homeowner, this means that the value of their home will be greater just by being in a development with open space." Increasing lot size in an undesignated conservation development raised the market price by 38 cents per square foot or \$16,662 per acre, researchers found. In non-conservation developments, a bigger lot size translated to only 9 cents per square foot, or \$4,062 per acre. Even homes that incorporate open space but are in undesignated conservation developments carry a price perk, selling for 25% more than those in conventional subdivisions.

Reed and colleagues plan to take these findings another step further, looking beyond the economic benefits to determine whether these unique subdivision designs achieve clear conservation benefits for a range of wildlife species.



Homeowners investing in conservation developments are selling their homes for 29% more than homes in conventional residential developments.



MAKING A CLIMATE CHANGE GAME PLAN

Uttering the words *climate change* can elicit a shut-down response given the overwhelming, daunting nature of the issue. But scientists are carving out clear, systematic approaches to navigating some of the most vexing climate change problems and the results of this work are empowering.

Dr. Molly Cross, WCS Conservation Scientist, is among this cadre, working to provide practitioners with the tools they need for successful climate change conservation work.

Dr. Cross and partners have developed the Adaptation for Conservation Targets (ACT) framework. This framework is a practical approach to assessing how future changes in air and water temperatures, precipitation, stream flows, snowpack, and other environmental conditions might affect natural resources under a variety of scenarios. ACT enables scientists and managers to work hand-in-hand to consider how management actions may need to be adjusted to address those impacts.

"As acceptance of the importance of climate change in influencing conservation and natural resource management increases, ACT can help practitioners connect the dots and integrate climate change into their decisions," according to Cross. "Most importantly, the ACT process allows practitioners to move beyond just talking about impacts to address the 'What do we do about it?' question."

The ACT framework has been taught through a series of workshops across the country, launching climate change planning approaches for more than 15 wildlife, plant, and ecosystem targets helping practitioners grapple with the issues they face in their particular region.

"The ACT process helps workshop participants move beyond the paralysis many feel when tackling what is a new or even intimidating topic by creating a step-by-step process for considering climate change that draws on familiar conservation planning tools," Cross said. "By combining traditional conservation planning with an assessment of climate change impacts that considers multiple future scenarios, ACT helps practitioners lay out how conservation goals and actions may need to be modified to account for climate change."



Places where the Wildlife Conservation Society and/or partners are applying the ACT framework.

Thus far, workshop attendees report that the ACT approach has been a tremendous resource for increasing their capacity to address climate change in their conservation work.

A CONSERVATION VICTORY FOR BATS IN BRITISH COLUMBIA

A well known, abandoned mine in Nelson, British Columbia became a popular roosting spot for bats that eventually developed into the largest, most diverse hibernaculum in the province. The Queen Victoria Mine is home to an astounding seven bat species of the 16 found in British Columbia.

Dr. Cori Lausen has been researching the Chiropteran inhabitants of the Queen Victoria Mine and surrounding area and is grappling with the extreme challenges bats are facing. Top on this list is White Nose Syndrome, a deadly fungus that kills bats while they hibernate, carrying a 90% death rate. More than six million bat deaths have been reported thus far.

It has yet to be found in British Columbia, but it is quickly spreading across North America. "We don't know how it's going to impact the West, but the predictions are dire," said Lausen.



Dr. Cori Lausen at the entry of the newly gated mine.

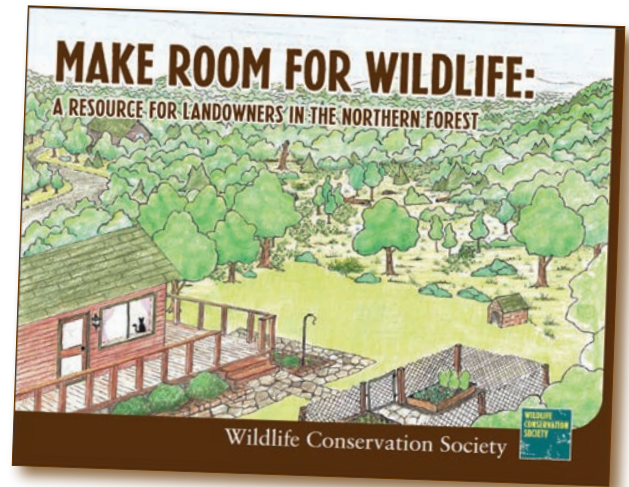
As a recognized vector of the disease, humans can unknowingly track spores of the deadly fungus, but an old, abandoned mine hardly seems a likely destination for anyone. Or so you would think. Lausen discovered a geocache treasure chest deep inside the mine and since GPS treasure hunting happens on a world-wide scale this was an alarming discovery. Looking further, Lausen found a geocache log-book signed throughout the winter months, during hibernation when bats are most vulnerable. This non-intuitive threat suddenly became very real and could prove deadly for the bats.

With the help of Lewis Franklin, a park exhibit fabricator, and Steve Blackmore, who builds wildlife enclosures and is part of the Canadian Cave Conservancy, bat-friendly gates were installed. The two gates were specially designed to keep people out while letting bats in, with grates spaced five inches apart to prevent people from sliding through and run three feet horizontally so that the bats in flight can glide inside.

This one, small action is a giant victory for bat conservation.

NEW TOOL FOR WILDLIFE-CONSCIOUS LANDOWNERS

This summer WCS released a new resource for landowners in the Northern Forest, in the Northeastern United States, interested in making wildlife-sensitive decisions when managing their property or building a home. Titled *Make Room For Wildlife: A Resource for Landowners in the Northern Forest*, this publication walks a landowner through the process of making land management decisions in ten richly-illustrated panels. The publication highlights ways to maximize ecological connectivity—the ability for wildlife to roam—such as establishing appropriate buffers along rivers and streams. It illustrates what a “model home” looks like, and provides specific guidance on issues like keeping pets indoors and maintaining healthy habitat in nearby forests. “Many people come to live in the Northern Forest because of its spectacular natural beauty and abundant wildlife,” said WCS Community Programs Coordinator and lead author of the publication, Leslie Karasin. “This brochure gives these folks the tools they need to steward the resources that they care about.”



WCS SCIENTIST RECEIVES AWARD

Congratulations to Dr. Joel Berger, who received the 2013 Aldo Leopold Conservation Award from the American Society of Mammalogists. He was recognized for the impact his research questions about mammalian ecology and conservation in natural systems at broad geographic scales have had on the field of conservation.

UPCOMING WORKSHOP

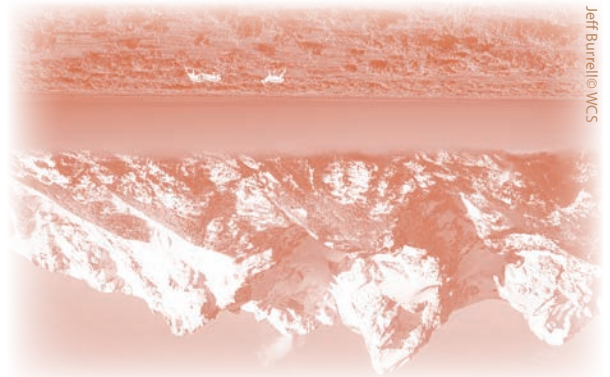
Community Oil-Spill Response in Bering and Anadyr Straits, Anchorage, AK, November 7th and 8th, 2013. Along with collaborators, WCS will identify specific tools and training that are needed for Alaskan and Chukotkan hunters and other community members to combat both small oil spills and to engage as part of a collective response to large spills in select areas around the Bering Strait region.

SAVING WILDLIFE AND WILD PLACES WORLDWIDE

The Wildlife Conservation Society saves wildlife and wild places. We do so through careful science, international conservation, education, and the management of the world's largest system of urban wildlife parks, led by the flagship Bronx Zoo. Together, these activities change attitudes towards nature and help people imagine wildlife and humans living in harmony. WCS is committed to this work because we believe it essential to the integrity of life on Earth.

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