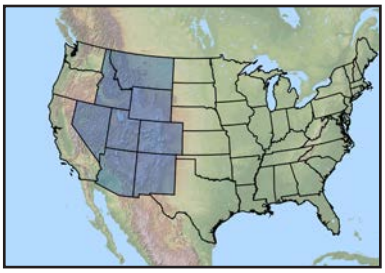
The 2014 Colorado College State of the Rockies Report Card

Large Landscape Conservation in the Rockies: Exploring New Conservation Paradigms for the 21st Century

An Outreach Initiative of Colorado College

Colorado College's Rocky Mountain Study Region



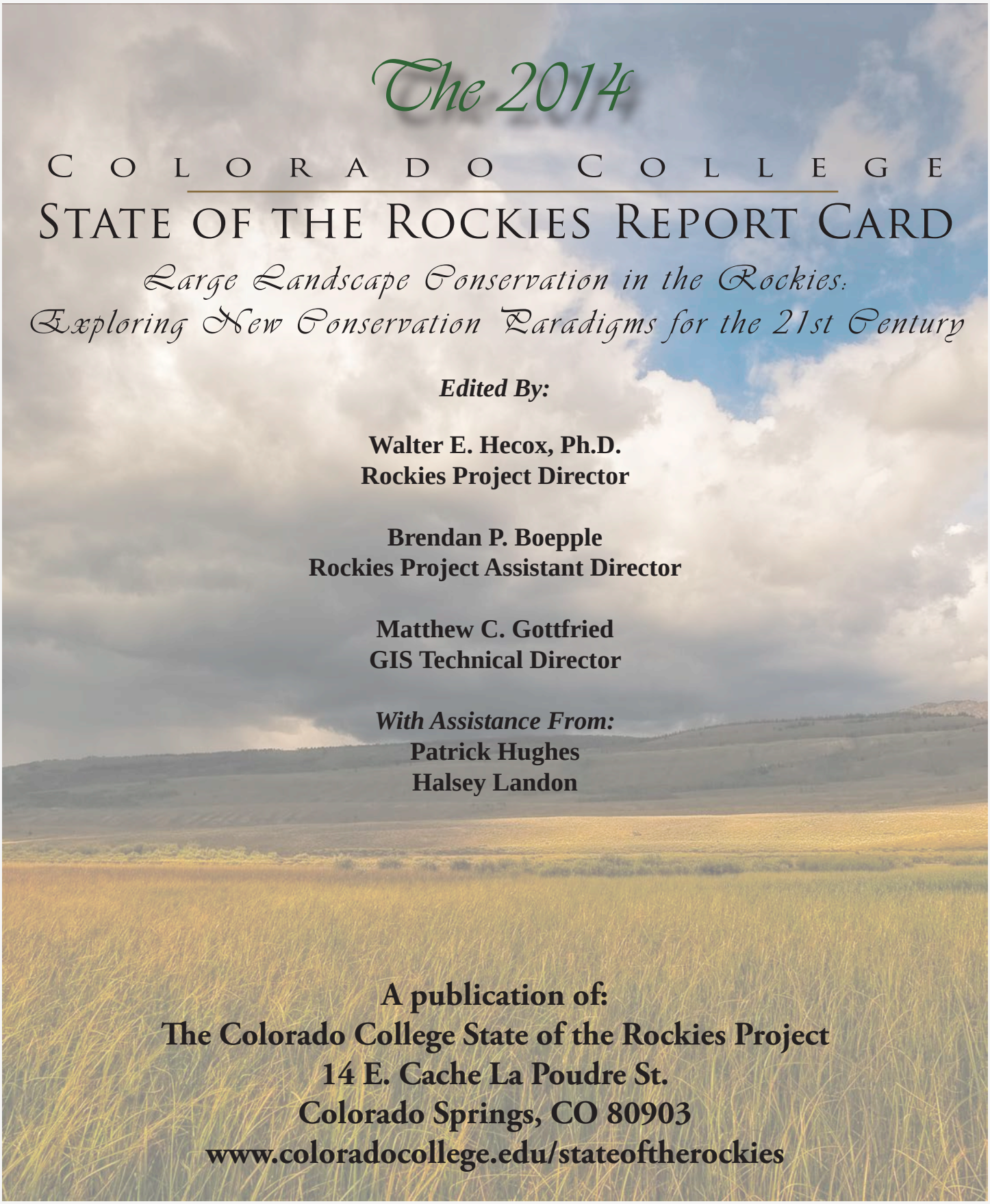
The Colorado College State of the Rockies Project is designed to provide a thoughtful, objective voice on regional issues by offering credible research on problems faced by the Rocky Mountain West, and by convening citizens and experts to discuss the future of our region. Each year, the State of the Rockies provides:

- Opportunities for collaborative student-faculty research partnerships;
- An annual *State of the Rockies Report Card*;
- A companion State of the Rockies Speaker Series and Conference.

Taken together, these arms of the State of the Rockies Project offer the tools, forum, and accessibility needed for Colorado College to foster a strong sense of citizenship for both our graduates and the broader regional community.

Colorado College
State of the Rockies

Cover Photo by:
Stephen G. Weaver



The 2014

Colorado College

State of the Rockies Report Card

Large Landscape Conservation in the Rockies: Exploring New Conservation Paradigms for the 21st Century

Edited By:

Walter E. Hecox, Ph.D.
Rockies Project Director

Brendan P. Boepple
Rockies Project Assistant Director

Matthew C. Gottfried
GIS Technical Director

With Assistance From:
Patrick Hughes
Halsey Landon

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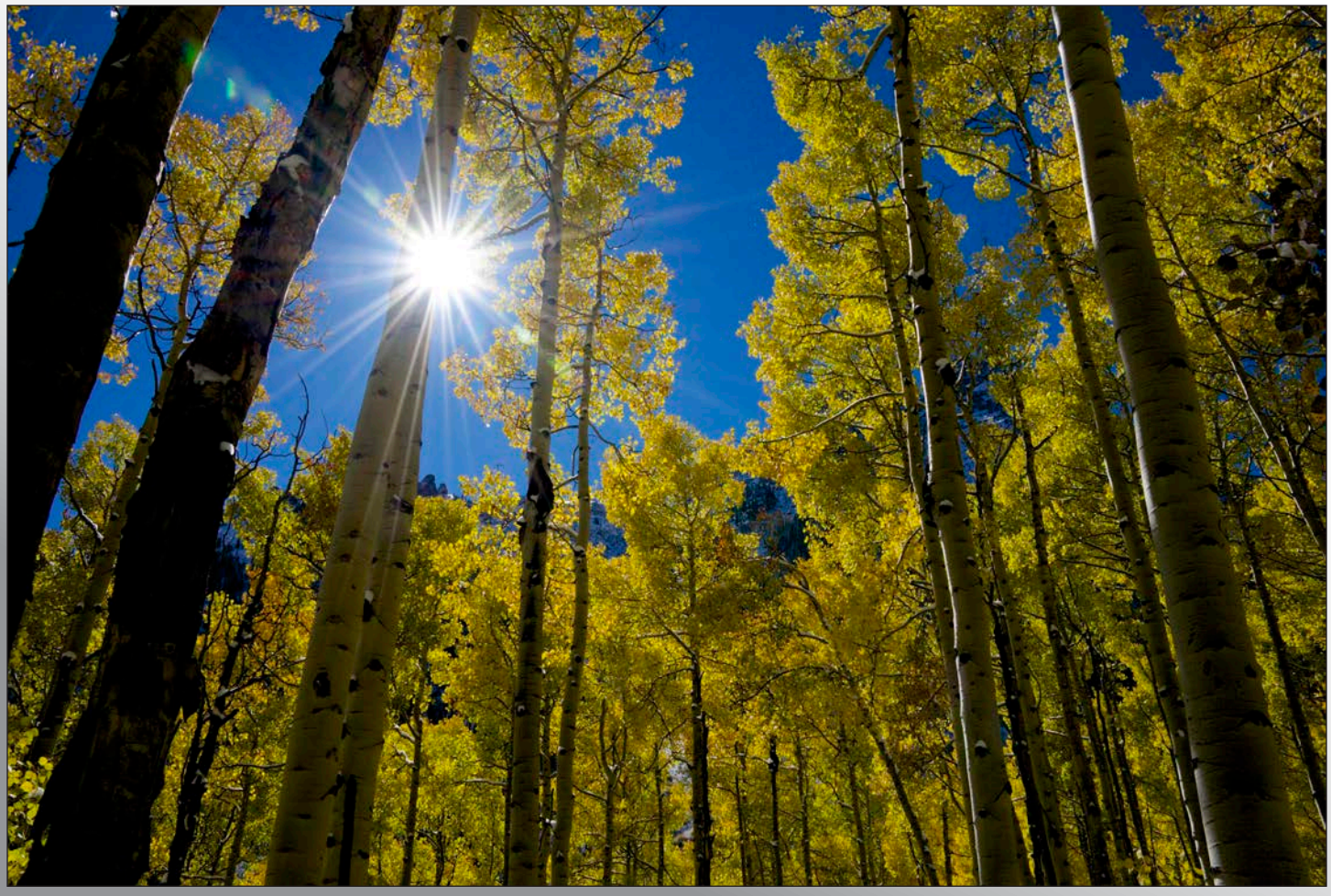

Rockies Project Photo Contest Third Place Winner: Fall Aspen Trees by Brian Grundy.

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The Colorado College State of the Rockies Project

Research, Report, Engage!

An Introduction from the President of Colorado College

The 2014 Colorado College State of the Rockies Report Card

The Colorado College State of the Rockies Project enters its second decade of research and analysis of the eight-state Rockies region with the publication of the 11th *State of the Rockies Report Card.*

The State of the Rockies Project celebrates the astoundingly beautiful region that shaped our beginnings and continues to be a distinctive aspect of Colorado College. Since its inception, the project and its cadre of stellar student researchers have conducted in-depth research on more than 45 issues that confront the Rockies region. Stimulated by our 140-year history and our surroundings at the base of Pikes Peak, independent-minded students, sharp in the classroom and active in the outdoors, have helped us explore the region. Each year, summer research by students, supplemented by research completed during field study throughout the Rockies, culminate in *Report Card* sections that are often peer-reviewed. Monthly speakers connect the broader campus and community to current issues. An annual State of the Rockies Conference in April brings renowned experts to campus as the *Report Card* is unveiled, topics are discussed, and conclusions are drawn. Beyond CC, our Rockies Project alumni are making their mark through jobs and internships, as well as advanced study at some of the nation's best graduate institutions. The earliest of these Rockies researchers are now in key conservation positions in places ranging from the U.S. Department of Interior and Forest Service to nonprofits, such as the Denver-based Center for Western Priorities.

Our students are always the catalysts in the topics selected, places studied, speakers brought to campus, and now social media outreach to the next generation of users and managers in the spectacular, but fragile, Rocky Mountain region. Proof of this strategy's importance rests in the extraordinary students joining the project, the quality of their research and writing, and the growing recognition of Colorado College as a central player in the environmental and socio-economic health of the Rockies region. Eight years into the Rockies Project, the Hewlett Foundation reached out, asking us to organize and host the now-annual Colorado College State of the Rockies Conservation in the West Survey. Currently in its fourth year, this survey explores the attitudes of western voters and brings widespread regional and national attention to challenges in the Rockies.

During 2013-14, the State of the Rockies Project focus returned to an analysis of the region's land and environment, as we explored new and innovative techniques of creative conservation and large-landscape conservation in the region.

The project's most recent research, discussed in this *Report Card*, looks at the many initiatives and approaches at work to further conservation in the Rockies. Through cooperation with the University of Montana's Center for Natural Resources and Environmental Policy to help develop case studies, the college is providing a resource to others conducting large-landscape conservation. Our student researchers have investigated the practices being implemented throughout the region to further the conservation of landscapes and the people who rely on them. This work also is being coordinated with the Practitioners Network for Large Landscape Conservation in order to engage the broader Rocky Mountain community and to act as a resource for others.

The Rockies Project once again enlisted a group of

About the author: **Jill Tiefenthaler** is the President of Colorado College.

Rockies Project Photo Contest Honorable Mention: Great Sand Dunes NP, Colorado by Mitra Ghaffari.

Colorado College students to address these issues and report on the state of large-landscape conservation in the region. The students continue a tradition of engaging stakeholders and investigating complex natural-resource issues, employing approaches that the college has long fostered with our intensive Block Plan and place-based learning.

Additionally this year, the adventurous spirit of the college was once again embodied in the project's third expedition, as a group of students and recent graduates traveled throughout the Rocky Mountain region to report on landscape-scale conservation. Through the use of new and traditional media, the team captured iconic images of the American West through photos and video, all while backpacking, paddling, and supporting themselves in some of the West's last wild places. In addition to encouraging development in environmental media and journalism, the expedition team and their productions raise awareness of pressing issues in the Rockies. Films, photos, blogs, and social media outreach all further our efforts of tying Colorado College back to the Rocky Mountain West.

The 2013-14 Project culminates with a session at Colorado College's first Innovation Institute Showcase in April 2014. The Rockies Project session, "Large Landscape Conservation in the Rockies: Exploring New Conservation Paradigms for the 21st Century," will feature the unveiling of this *Report Card* and will bring to campus Michael Soulé, a conservation biologist and advocate for landscape-scale conservation initiatives in the Rockies. He will discuss the development of conservation biology from its genesis to the present, highlighting innovations that address the increasingly imperiled state of natural ecosystems.

Colorado College President Jill Tiefenthaler.

Colorado College is in the first year of implementing its new strategic planning effort: "The Colorado College Plan: Building On the Block," driven by a mandate from trustees to:

- *elevate the college's identity as a highly-selective liberal arts institution*
- *strengthen the academic program with an emphasis on engaged teaching and learning*
- *explore how our unique location, character, and community can be leveraged to support the academic venture and promote a collective sense of place*
- *evaluate and enhance institutional effectiveness and efficiency to better position the institution for evolving changes in higher education.*

Two of the goals identified in the strategic planning process speak to the importance of our location in the Rockies and help provide a path forward for the State of the Rockies Project.

Colorado College is not your typical liberal arts college. It appeals to certain kinds of people — those with a strong sense of self-confidence and curiosity. High-achieving students from around the globe are drawn to CC because they see learning as an adventure and are motivated by the rigor and intensity of the Block Plan. As the only liberal arts college in the Rocky Mountain West, we have a special opportunity to harness this spirit of the West — innovation, creativity, and big-picture thinking — to produce real-world answers to complex questions. Our innovative and adventurous spirit — which grew out of our founders' ambition to build a world-class institution of higher learning to educate citizens for the New West — defines us.

We are in the early stages of developing an Innovation Institute to provide resources, structure, and encouragement to students and faculty as they investigate social and environmental challenges, understand the context in which they exist, identify sustainable solutions, and put them into action. By offering students and faculty a place to go from theory to idea to practice, the Innovation Institute will bring together the skills of the liberal arts — creativity, collaboration, critical thinking, and communication — with our own innovative spirit and commitment to making the world a better place. This will position the college to do an even more powerful job of demonstrating the vital connection between doing good and doing well.

I encourage you to join us as we recognize and celebrate yet another year of the Rockies Project's work and accomplishments by looking through the rich student-written materials in this latest *Colorado College State of the Rockies Report Card*. Likewise, I encourage you to stay engaged as the Rockies Project fits into its new home within the Innovation Institute and continues to engage in innovative approaches to the Rockies region.

Jill Tiefenthaler
President
Colorado College

Editors' Preface

By Dr. Walter E. Hecox, Brendan P. Boepple, and Matthew C. Gottfried

The 2014 Colorado College State of the Rockies Report Card

Rockies Project Photo Contest Honorable Mention: Moonlight on Mount Sneffels, Colorado by Andrew DeLauriers.

Celebrating the Rocky Mountain West

Colorado College President Jill Tiefenthaler's Introduction to this *Report Card* describes the eleven-year effort of the college to create its Rockies Project, and tie the college back to its past with the Rocky Mountain West. We appreciate the guidance and support of the college over these years as teams of student researchers have explored key challenges, written reports published in the annual *Report Cards*, and brought to campus experts able to help the campus and community engage in dialogue. Our two-year-long focus on the Colorado River Basin from 2011-2013 brought new dimensions to traditional efforts of the Project. While we stuck to our roots of researching and reporting on crucial issues in the Rocky Mountain West, we also went to great lengths to strengthen our engagement with the regional community.

Continuing this momentum into our 2013-14 Project cycle, we have had two objectives: first, we once again sought to promote a greater understanding of landscape-scale conservation efforts through our undergraduate research and ultimate publication of this *2014 Report Card*; second, we have promoted a greater engagement on the state of, and more importantly, the future of natural resources in the Rocky Mountain West. By highlighting not only the unique landscapes that support both wildlife and ecosystem services, but also healthy communities and economies throughout our region of focus, we have aimed to approach the issues with a wide lens. The work published in this year's *Report Card*, along with a film produced by this year's Spine of the Continent Expedition, showcase the talents of our undergraduate research team. Furthermore, our ability to engage a broader regional community through our *Report Cards*, the Spine of the Continent video production, and a year-long speakers series has once again shown that the work of the Project continues to find an engaged audience invested in the future of the beautiful, but fragile, Rockies region.

Using a Proven Approach: Research-Report-Engage

Central to the 2013-14 year's activities, as in the past, are the three goals of the Colorado College State of the Rockies Project:

- RESEARCH: To involve Colorado College students as the main contributors to the *Report Card* and conferences.
- REPORT: To produce an annual research document on critical issues of community and environment in the Rocky Mountain West (the *Report Card*).

About the co-editors: **Walter E. Hecox** is professor of economics in the Colorado College Environmental Science Program and Faculty Director for the State of the Rockies Project.
Brendan P. Boepple is the Rockies Project Assistant Director.
Matthew C. Gottfried is the college's GIS Technical Director and the 2013-14 Technical Liaison for the Rockies Project.

•ENGAGE: To host annual monthly speakers series and events at Colorado College, bringing regional experts together with concerned citizens.

Student-Faculty Collaborative Research: Reporting on the State of the Rocky Mountain West

Building upon two years of focus on a very large conservation area in the Rockies, the Colorado River Basin, during 2013-14 we returned to an analysis of the eight-state region's land and environment. We delved into the techniques of "creative conservation" and "large landscape conservation" to provide comprehensive insight into innovative conservation actions and tools in the region. Using tabular and spatial techniques, we have begun to build a detailed inventory of conservation efforts and initiatives underway in the Rockies.

To achieve these goals we once again hired a group of Colorado College students to conduct the Project's research throughout the summer of 2013. In addition to time spent on campus investigating issues, calling experts, and working with GIS software, the team also spent time in the field meeting conservation professionals to discuss, and see firsthand, the important work underway throughout the region. Fieldwork included trips to the Sangre de Cristo Mountains of southern Colorado, a two-week trip to the northern Rockies including Wyoming and Montana, and a visit to the Rocky Mountain Arsenal Wildlife Refuge on Colorado's Front Range. All of this research and engagement with pertinent stakeholders has resulted in the content of this publication. From communities of ranchers in rural Montana coming together to protect the watershed that sustains their livelihoods, to conservation philanthropists bridging the gap in federal conservation policy in Colorado, the examples found within this year's *Report Card* point to a promising future for the Rocky Mountain region.

Through our research, as reported in this *Report Card*, we aimed to directly address key landscape conservation efforts underway in the Rockies. We have followed through on this vision through the development of case studies that capture the many different initiatives underway and the various approaches at work to enhance conservation in the Rockies. By cooperating with the University of Montana's Center for Natural Resources and Environmental Policy, we have worked to build upon their existing efforts that cataloged large landscape conservation initiatives already underway in the eight-state mountain region. By applying a common template to all of our case studies, highlighting different elements of management, cooperation, and other attributes, we have begun to develop a repository for other conservation efforts here in the Rocky Mountain region and beyond.

We have been very fortunate to coordinate this effort with the Practitioners Network for Large Landscape Conservation. This growing international network of individuals and organizations, working to conserve landscapes in the ever-changing conservation field of the 21st Century, has shown great success in sharing best practices and strategies for achieving landscape-scale success. As this network continues to grow, we hope that the early work of the Rockies Project will be built upon through further collaboration with the University of Montana, as well as additional conservation organizations and other institutions of higher education. As a small liberal arts college, Colorado College is uniquely positioned to strengthen the growing understanding of landscape conservation in the Rocky Mountain West, and therein an awareness of this growing movement to conserve ecosystems and their crucial services for our eight-state region.

Engagement

Spine of the Continent Expedition

Developing off of two successful field expeditions throughout the Colorado River Basin in 2011 and 2012, we assembled a new expedition team for the summer of 2013 to investigate the Project's focus of large landscape conservation. By travelling to a number of key large landscape conservation areas and leveraging the region's strong ties to outdoor recreation, we are broadening awareness of these conservation efforts through traditional and emerging media. Areas of focus for this summer's field expedition work included: the Thompson Divide in Colorado, the Sangre de Cristo Conservation Area in Colorado, the Greater Yellowstone region in Wyoming and Montana, the Crown of the Continent in Montana and Alberta, and the Gila Wilderness in New Mexico. Our expedition team split their efforts between capturing the natural beauty of these areas through extended time in the backcountry and interviewing key stakeholders involved in conservation work to highlight the human element of the region's conservation work. Through blogs, photography, and the production of a video series, we seek to engage a greater audience in the discussion of large landscape conservation.

In addition to a film titled Spine of the Continent, set to premiere at this year's first Colorado College Innovation Showcase, our expedition team has also contributed sections to this year's *Report Card*, presenting personal narratives to some of the Rockies' iconic landscapes. These sections provide a firsthand account of the landscapes across the Rockies that many individuals and organizations are working tirelessly to protect. Additionally, many of the photos that are featured in this year's *Report Card* are from our expedition team. By engaging an audience through photo and video media, while also leveraging the growing power of social media, this initiative of the Project has already reached thousands online, and will reach thousands more as we release our latest Rockies Project film production.

Rockies Project Speakers Series

During the 2013-14 academic year the Rockies Project once again sponsored a speakers series, bringing conservation experts to campus to speak with students and community members in Colorado Springs. Beginning in October with Dr. Gary Tabor, Director of the Center for Large Landscape Conservation, the series began with a talk titled "The Emergence of Large Landscape Conservation in an Era of Planetary Thresholds." After the foundation laid by Dr. Tabor's talk, in November James Levitt, Director of the Program on Conservation Innovation at Harvard University examined the growing large landscape conservation movement and highlighted the important tools emerging through technology and

organizational structures shaping the future of the movement. The talk, "Large Landscape Initiatives and the Future of American Land Conservation," enriched the series with a particular focus on the innovative measures underway to conserve landscapes, not just throughout the Rocky Mountain West, but across the globe as well.

Our final two speakers of the series, authors Todd Wilkinson and Mary Ellen Hannibal, both discussed their respective books, focusing on different elements of landscape-scale conservation here in the Rocky Mountain West. In December, Todd Wilkinson spoke about his biography of entrepreneur and conservationist Ted Turner. Wilkinson's book, *Last Stand: Ted Turner's Quest to Save a Troubled Planet*, examined the life of Ted Turner and the important role he has played in many global issues, but with a particular emphasis on the conservation of wild lands in the western United States. The talk, focusing on the unique role that private land conservation has contributed to landscape-scale conservation, shed light on the work of Mr. Turner and his goals of rewilding the West. Mary Ellen Hannibal's talk in February of 2014 focused on her recent publication, *The Spine of the Continent*. This final event of the speakers series covered the ambitious efforts of individuals and organizations to reconnect the remaining wild places in the Rocky Mountain West to support the vision of conservation biology, and the conservation of species from the Yukon to Mexico. Through her talk, our campus audience was introduced to important players at work to conserve crucial landscapes in the Rockies. By acting in cooperation, important actors in local conservation efforts throughout the Rockies have come together to prove that in conservation, the whole is greater than the sum of its parts. Hannibal's talk covered an incredibly ambitious plan meant to fortify landscapes in the face of a changing climate and further development in the West; ambitious, but of increasing necessity in the 21st Century.

Colorado College's Innovation Showcase

The Project's final event of the year will replace our traditional State of the Rockies Conference with an event that is part of Colorado College's first Innovation Showcase. The Showcase, meant to pull together various programs from across the college that focus on addressing pressing environmental, social, and business challenges, will be an ideal culmination for the year's efforts. In addition to releasing this *2014 State of the Rockies Report Card*, we will also premiere our most recent film production Spine of the Continent. Additionally, this year's annual Rockies Project speaker will be esteemed conservation biologist Michael Soulé. His study of conservation biology and advocacy for a greater understanding of conserved lands is the foundation for much of today's large landscape conservation movement. We are very honored to have Michael Soulé involved with the culmination of this year's Rockies Project.

Repeat historical glacial photography of Grinnell Glacier in Montana by the Spine of the Continent Expedition. Alex Suber

Rockies Project Photo Contest First Place Winner: Clouds settle around the high peaks of the San Juan Mountains near Telluride, Colorado by John Collis.

Innovative Conservation for the Rocky Mountain West

This year's Project, similar to those over the past decade, has drawn together components of our motto "Research, Report, Engage" to focus our attention on the innovative measures underway to conserve the landscapes of the Rocky Mountain region. As we have enlisted the help of Colorado College students to achieve our goals, we have also fostered future leaders in the field of conservation. This growing cadre of future leaders, more than any of the Project's other annual successes, will have a lasting impact on the landscape that is the Rocky Mountain West. Through our student-faculty collaborative research we have promoted holistic thinking and the need to engage all stakeholders, big and small, in the future management of our unique region. Through this latest *Report Card*, and the production of yet another Rockies Project film, we have given our students a voice, while also creating additional invested stakeholders. And through our engagement with the Colorado College campus, and the Rocky Mountain community as a whole, we have demonstrated that their voice will continue to find an interested audience. While these stand-alone pieces are impressive on their own, by bringing our students full circle we continue to provide benefits not only to our regional community, but also to these bright young minds eager to participate in the conservation field and to address the difficult challenges of the 21st Century.

We encourage you to delve into this year's *Report Card* and see firsthand yet another example of the important work being conducted by our students. Additionally, we hope you will continue to engage with these important large landscape conservation issues and make your own voices heard, because we are all important stakeholders in the future of the Rockies region.

Spine of the Continent Expedition

The North Fork of the Flathead River

By David Spiegel

About the Author:

David Spiegel (Colorado College class of '12) is the Education and Outreach Coordinator for the State of the Rockies Project.

David Spiegel

Throughout this 2014 State of the Rockies Report Card, sections highlighting the summer 2013 Spine of the Continent Expedition will bring a personal narrative to some of the landscapes we have profiled. The Expedition, which crossed through five western states and into Canada, sought to raise awareness of the Rocky Mountains' iconic landscapes and the tireless efforts of individuals and organizations working to conserve them intact for future generations.

The North Fork of the Flathead River valley lies directly adjacent to the border of the Waterton-Glacier International Peace Park. Despite its proximity to this famous landmark, a journey to the upper reaches of the North Fork of the Flathead is not an easy one to undertake; the valley is not well traveled by humans.

Getting there requires a journey to Fernie, British Columbia. From there, get ready for multiple hours of driving on rough dirt logging roads to cross over stunning mountain passes. Just when you think that the bone-jarring ride will never end, the magnificent river valley comes into view. The valley is almost completely unpopulated and relatively intact, ecologically speaking, despite some logging activity in the past. Not only is it intact, but it is also huge. Looking out across the valley in late summer, I can't help but wonder if I have ever seen such a large place with so little evidence of humans. Despite its huge scale, the Flathead is actually just one piece of the Crown of the Continent.

The Crown of the Continent ecosystem is a massive, ecologically intact section of the Northern Rockies surrounding Glacier National Park.

When we think of lands that should be protected, we often think of the high elevation "rock and ice" landscapes. Towering cliffs, glaciated peaks, and alpine lakes capture the imagination; they are just one piece of the puzzle when it comes to conserving a landscape. These alpine areas are relatively easy to protect, not only because of their obvious aesthetic qualities, but also because no one can live there. Unfortunately, the "rock and ice" landscapes are not always ideal habitat for wildlife. The areas that are more difficult to protect are those mid elevation valleys and riparian corridors that are, in fact, crucial to the health of an overall landscape. These relatively lower elevation forests and riparian ecosystems provide the habitat that grizzly bears and other wildlife need in order to survive throughout most of the year.

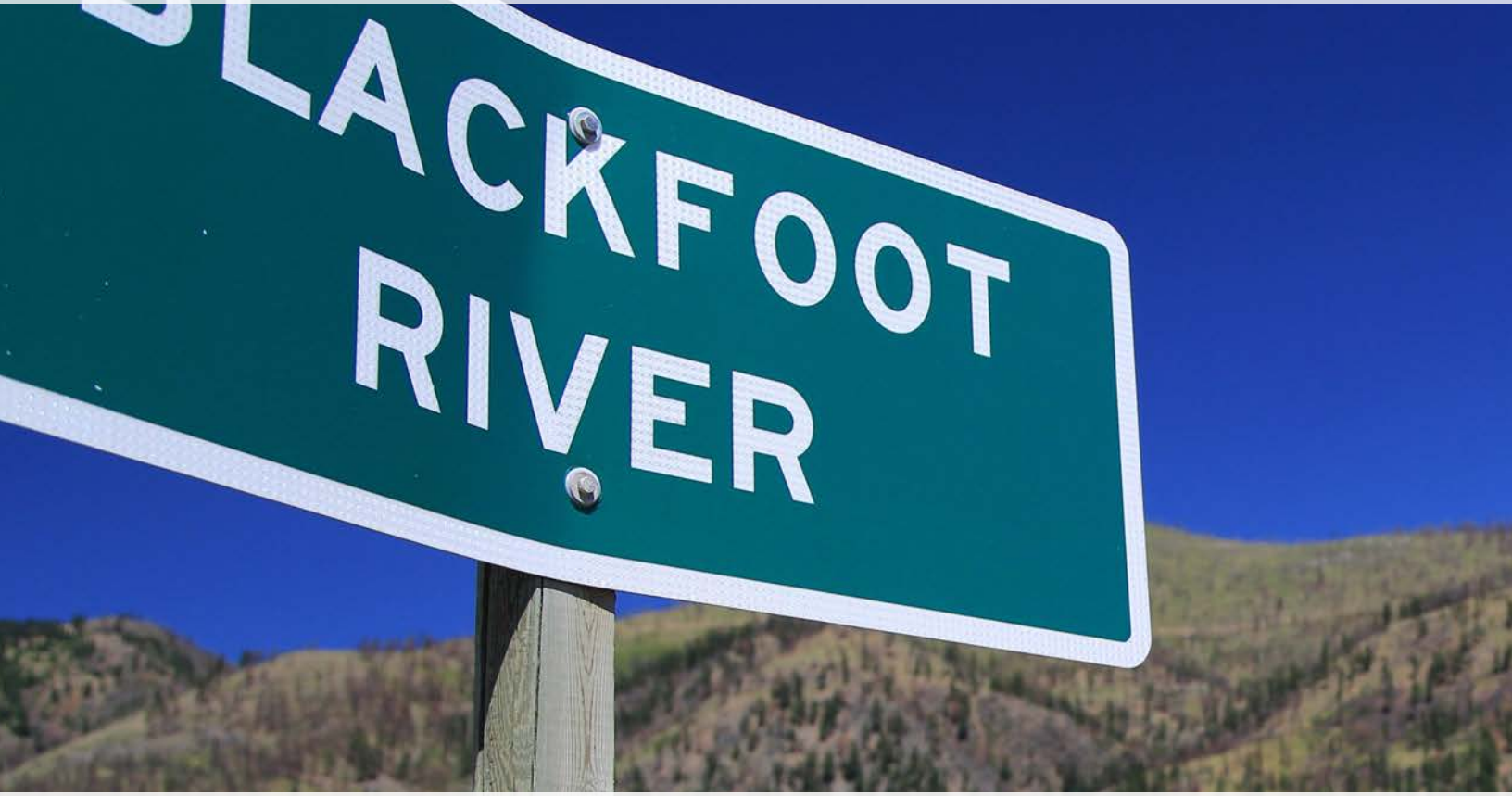
The Flathead is one of these landscapes and as we drove through the valley, we quickly saw firsthand how important this area is to the wildlife of the Crown of the Continent. We quickly spotted elk, a bear, and even a mountain lion without leaving our vehicle. The river itself teems with native cutthroat trout, which we caught during our first evening camping in the valley. Ryland Nelson, who works for the Canadian conservation organization, Wildsight, joined our Rockies Project Expedition on our trip to the Flathead. "There are no other places left like this in North America," Ryland told us. "You have the highest concentration of grizzly bears. You have a free-flowing river. You have the full assemblage of all 18 carnivore species that exist in western North America. You just don't find places like this anymore."

Ryland went on to explain that, in addition to providing ideal habitat, the Flathead is a crucial migration corridor that connects wildlife populations near the U.S. border to those further north near Banff and all the way to the Yukon. "The Flathead is a lynchpin," Ryland stated. "If connectivity is lost in this region– whether it's through unsustainable forestry, increased motorized recreation, or resort development– then the functionality of connectivity in the entire Yellowstone to Yukon movement is cut off. It's really an internationally significant landscape." Without these connective landscapes between core areas, conservationists fear that wildlife populations will slowly weaken and die.

Currently, the U.S. and Canadian governments have agreed to withdraw mining and drilling claims from the Flathead. Canada has already withdrawn these claims and legislators in the U.S. should, theoretically, follow suit soon. Still, many conservationists would like to see the area absorbed into the Waterton-Glacier International Peace Park, which would grant the area even more complete protection from future development of any kind.

Large Landscape Conservation Case Study
Blackfoot Challenge

By Samuel Williams



Location

Located in North Powell, Lewis & Clark, and Missoula Counties in western Montana, the 1.5-million-acre area of the initiative, as well as ownership of lands, is displayed in **Figure 1.**

The Blackfoot Watershed, the Challenge's area of focus, is not a stand-alone conservation area. Nested within the 18-million-acre Crown of the Continent region and the even larger Yellowstone to Yukon bioregion, which spans over 2,000 miles from Wyoming to just below the Arctic Circle, this watershed forms a small, yet integral, part of the greater conservation picture. These different large landscape conservation initiatives can be seen together in **Figure 2**.

The Challenge is also nested within several federally designated large landscapes, the most well-known being the Great Northern Landscape Conservation Cooperative (GNLCC) of the Department of Interior, seen in **Figure 3**. Created by Secretarial Order No. 3289, the GNLCC is a part of the broader Department of Interior network of environmentally and politically formed regions where cooperation between government agencies and the public and private sectors is utilized in order to mitigate the effects of climate change and conserve natural resources.[1]

Date of Origin

The Blackfoot Challenge was chartered in 1993, while conservation activities by Blackfoot landowners date back to the mid-1970s.

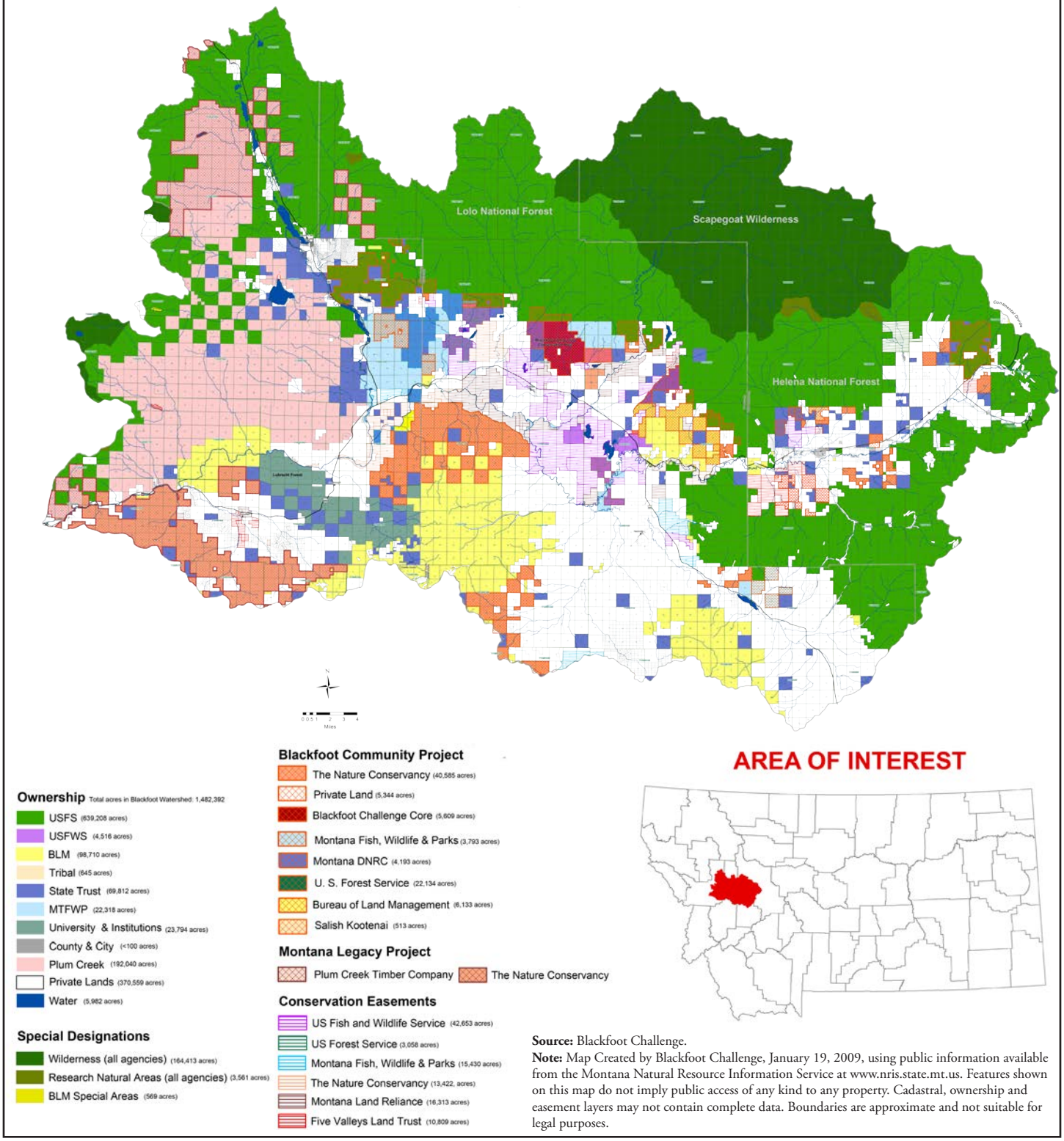
Size of Initiative

Approximately 1.5 million acres of land in the Blackfoot Watershed extend from the Continental Divide westward for 132 miles to its confluence with the Clark Fork River.

About the Author:
Samuel Williams (Colorado College class of '14) is a 2013-14 Student Researcher for the State of the Rockies Project.

Breton Schwarzenbach

Figure 1: Ownership of Lands in the Blackfoot Challenge



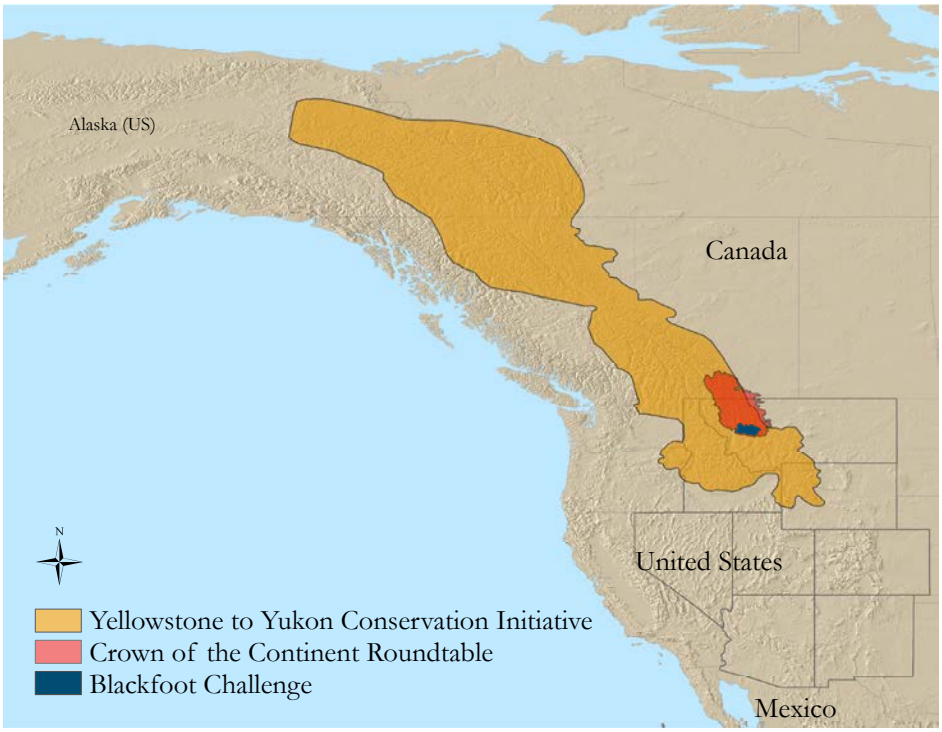
Source: Blackfoot Challenge.
Note: Map Created by Blackfoot Challenge, January 19, 2009, using public information available from the Montana Natural Resource Information Service at www.nris.state.mt.us. Features shown on this map do not imply public access of any kind to any property. Cadastral, ownership and easement layers may not contain complete data. Boundaries are approximate and not suitable for legal purposes.

Summary

Like most large landscape conservation initiatives, the Blackfoot Challenge is multi-jurisdictional, multi-purpose, and multi-stakeholder; it operates at various geographical scales and involves a variety of relationships between interested groups.

Operating in the Blackfoot Watershed, the Challenge was initiated in order to act as "a hub of information" in the valley.[2] Residents, managers, recreationalists and more were concerned about deteriorating environmental quality in waterways. So in the early 1990s, meetings began to occur in order to address these issues. From the beginning, inclusivity was a major component. By bringing everyone to the table and, initially, refraining from making any major decisions, relationships and understanding began to build and an environment of respect, community, and shared purpose emerged. This development is at the heart of the emergence of one of the first working scale examples of a "community-based conservation" initiative.

Figure 2: Blackfoot Challenge and Other Northern Rockies Large Landscape Initiatives



Source: Blackfoot Challenge, Crown of the Continent Roundtable, ESRI Data, SRTM.

The original academic understanding of community-based conservation was a strictly theoretical argument against biocentric conservation, which embraced actions without looking toward social effects. It has since shifted to on-the-ground, "integrated approaches that embrace equally the societal and biological aspects of conservation."[3] Cornerstone principles of community-based conservation now include "local participation, sustainable natural and human communities, inclusion of disempowered voices, and voluntary consent and compliance... Win–win outcomes are sought, with all stakeholders at the table."[4] The Blackfoot Challenge takes these already lofty goals a step further by utilizing a consensus-based decision making process: a daunting prospect, given the polarizing nature of conservation work.

Although the initial stages of the Challenge faced several opponents, such as corporate timber interests in the area, the group's inclusive decisionmaking process has, over time, become a cornerstone of the entire community. Minor pockets of what could be called opposition (but in reality are more along the lines of non-participation) do exist. But, as the former Bureau of Land Management (BLM) representative on the Challenge board George Hirschenberger puts it, there is always that "10% of the population: give them a gold watch and they'd complain."[5]

The consensus principle of the Challenge is a keystone of their approach. According to Executive Director Gary Burnett, it is not so much a formalized voting procedure as a "nuanced, aware, subjective relationship" between members, which allows for better understanding and cooperation.[6] By understanding and respecting all positions and foregoing any item which is strongly opposed, even if there is just one hold-out, a consensus is upheld and decisions do not polarize groups, but bring them together.

Over the history of the Challenge, continuous consultation with the various stakeholders and provision of sound information resulted in the organization becoming a vital conduit between federal agencies and the public.[7]

From the early environmental rumblings of landowners to its inception, and into the present day, the Blackfoot Challenge has undergone quite an evolution. From around the late 1990s, big strides were being made in integrative weed management, sustainable ranching practices, conservation easements and water quality measures, among other things. The positive, tangible results of this group are being felt more powerfully every year.

Despite the progress of the last 20 years, the Challenge is not above critique. Held up as a nation-wide model of the power of community-based conservation, the process of the Blackfoot Challenge and its accomplishments may not be as transferrable as its advocates would like to believe.

There were highly specific factors which facilitated the development of the Challenge. Two of the greatest factors are unique leadership, and high, some would say disproportionately high, federal funding. Energetic and charismatic personalities such as rancher Jim Stone and United States Fish and Wildlife Service (USFWS) representative Greg Neudecker have played a crucial role in bringing together various segments of the watershed and obtaining agency funding. Personality, unfortunately, cannot be learned, so this factor could be limiting in other circumstances.

With the political consensus in the watershed, and proactive agency workers such as Mr. Neudecker, vast amounts of federal funding, almost $40 million over the last 15 years, have been obtained in order to pursue Challenge projects. These levels of funding simply cannot be obtained in the same way regardless of area. Certain local and agency personalities, political attention or environments, and numerous other factors created the perfect target for these federal grants in the Blackfoot Valley. While other grants were given to the Challenge, the majority were federal, both in number and value.

Although the specific achievements of the Challenge and the levels of funding, especially federal, may not be precisely reproducible, the organizational ideas utilized are incredibly important. In our current national political divide, ideology and attitudes appear to make collaboration, and even simple respect across the aisle, a nearly impossible task. With the Challenge comes an example of "people as people" in politics. On a small scale, respect and understanding are at the forefront of politically divisive discussions. The path to this

social environment and the power it holds are perhaps the greatest lessons of the Blackfoot Challenge.

Governance

Leadership: The Challenge depends heavily upon its Board members, who consist of ranchers, landowners, federal and state agency administrators, non-governmental organization members, and more. The Board and committees are unpaid, but there is a paid team of seven full-time staff members to assist in the operation of this entity.

Structure: Following an open-membership model, anyone who wishes may participate in Challenge meetings and all decisions are made by consensus. Additionally, there is a Board of Executives and Directors. Under this Board are seven committees, each tasked with an important limb of the Challenge's strategic areas. The committees are Water, Wildlife, Weeds, Forestry, Education, Conservation Strategies, and Executive & Outreach. There are monthly meetings for the Board of Executives and Directors, and annual, larger meetings.

Type of Initiative: The Blackfoot Challenge is a 501 (c)3 nonprofit organization. It is a formal institution.

Authority: The authority held by the Challenge is due to the trust between it, its partners, and the community. This trust allows them to enact powerful measures, even using their consensus-based approach.

Participants

Partners include private landowners, local, state and federal agencies, corporations, foundations, and other non-profit groups.

Key Partners: The United States Fish and Wildlife Service, the Nature Conservancy, Bureau of Land Management, Forest Service, Montana Department of Fish, Wildlife, and Parks, and the Department of Natural Resources and Conservation are some of the most integral partners.

Affiliated Partners: The Challenge coordinates with over 60 governmental, nonprofit, and private partners.[8]

Mission

Mission: "To coordinate efforts to conserve and enhance the natural resources and rural way of life in the Blackfoot Watershed for present and future generations."[9]

Objectives: The specific objectives of the Challenge are determined and pursued on a committee basis. These include reducing wildlife conflicts, improving river water and fishery quality, maintaining and improving forest health, and spreading the lessons of the challenges to interested parties.

Motivations for Initiating Effort

A history of poor mining, logging, and grazing practices had cumulatively led to the deterioration of the Blackfoot River Watershed's quality.

Figure 3: Great Northern Landscape Conservation Cooperative

Source: Blackfoot Challenge, U.S. Fish and Wildlife Service, ESRI Data, SRTM.

According to Blackfoot Challenge co-founder, Land Lindbergh:

> "Before the Challenge was formed, there was no forum to handle both the direct and indirect impacts to the river. With the influx of new ideas and people to the valley coupled with the different agendas of all of the agencies, it was time to get in front of the potential issues and try to deal with them."[10]

Major Strategies

Research: Most of the research in the watershed is paid for or conducted by entities other than the Blackfoot Challenge. Federal agencies, nonprofits, and others pursue the legwork, which is then shared between parties at Challenge meetings. This environment creates an open, knowledgeable community of experts, which can better evaluate the environmental status of issues in the watershed.

Planning: General planning for the direction and finances of the Challenge occurs at the monthly meetings. All planning of specific activities is driven by individual committees.[11] It is at the committee level that all tangible plans are informed, created, and implemented.

Regulation: All projects which contain pieces that regulate behavior in some way are totally voluntary. Incentive-based programs are implemented so that the vast majority of landowners will decide to abide by the specific stipulations. While there is no direct way to regulate landowners, the environment of trust makes this a deceptively powerful tool. As for the landowners who don't participate, "Well," says Jim Stone, "they'll either come around or they won't."

Restoration: Made famous in the Norman Maclean novel, and subsequent film, A River Runs Through It, this area of Montana contains a large fly fishing presence. Hence, many of the restoration projects have been focused on riparian

areas, stream beds and banks, and other projects that increase fishery health. Other common projects include noxious weed removal and sustainable forestry and grazing practices.

Communication: Communication among Challenge members occurs at monthly meetings where mornings are occupied with the business of running the enterprise, and afternoons are filled with information sharing and relationship building. When committee meetings will occur is variable and up to each committee on an individual basis.

Some strategies for successful communication are "proper pacing" and the "nuanced, aware, subjective relationship"[12] among members. As Jim Stone says, conservation "isn't all about resource management, it's about people."[13] In its communications, the Challenge shows that this is not just a slogan, but a guiding principle.

Besides the above mentioned strategies, the Blackfoot Challenge also pursues these other tools in order to fulfill its mission:

Participation: Inclusive, consensus-based format mandates as much participation by stakeholders as possible, from landowners to corporations to government agencies. Besides serving this direct function, the Challenge also facilitates communication between and among various groups for conservation purposes in the Blackfoot Watershed.

Conservation: Mainly using the tools of fee title acquisition and conservation easements, the Challenge seeks to conserve "the working landscapes and rural way of life" in the watershed.

Stewardship: With the goal of maintaining connections between people and their land, projects such as fire management, wildlife-human interactions, and water usage are implemented.

Education: In order to ensure the current state of the watershed for "future generations," as per their motto, educational programs engage both youth and adults in place-based classes and workshops.

Outreach: In addition to educating local communities, the Challenge hosts workshops (such as the "Transferability Workshop" of September, 2012) and shares information with federal programs, such as the USFWS "Partners for Conservation" and President Obama's America's Great Outdoors. The aim of these programs is to examine the possibility of the Challenge model of community-based conservation in other areas around the country and take steps for its application.

Ecosystems Characteristics and Threats

The Ecosystem: The valley forms the southern edge of the Northern Continental Divide Ecosystem, which supports the largest population of grizzly bears in the lower 48 states. The exceptional wildlife in the area also includes Canada lynx, fisher, gray wolves, bull trout, and migratory birds, such as the recently reintroduced trumpeter swan. The watershed itself contains riparian and wetland areas, sagebrush steppe, coniferous forests, prairie grasslands and various states of range and agricultural land.[14]

Threats: Threats to the watershed include continued development, subdivision of land into smaller parcels, drought conditions and declining water resources, invasive plant species, unhealthy human-wildlife interactions, and wildfires, among others.

Distribution of Protected Land: The watershed is currently situated with the majority of private land in the lower elevation valley floor, while higher elevations tend to be publicly held. The distribution of protected land may be seen in **Figure 1.**

Monitoring, Assessment, and Evaluation

Baseline Conditions: Baseline environmental conditions, as well as goals, are established by the agencies in the area. Utilizing higher levels of funding and expertise, federal and state agencies, such as the United States Fish and Wildlife Service, provide the environmental information necessary for Challenge decisionmaking.

Monitoring: Similar to the baseline conditions, most monitoring is done by agencies, not the Challenge itself.

Evaluation: In the committees, experts from all Challenge partners consult the available information and collectively evaluate conditions to determine plans of action.

Accomplishments/Impacts

Reported on a yearly basis in the annual reports, some major accomplishments of the Challenge include:

- 285,000 acres are now under conservation easement, all of which were created since the mid-1970s, when the very first easement in Montana was established in the watershed.
- Over 500 students, ranging from preschoolers to 8th graders, and 200 adults have participated in education programs and workshops.
- Drought response plans were drafted and implemented, involving voluntary community-wide reductions in irrigation, angling, and other uses.
- Nearly 400 private landowners are participating in integrative weed management.
- There was a 93% reduction in grizzly bear conflicts from 2003-2009.

Factors Facilitating Progress

During the roll-out of the America's Great Outdoors program in 2011, former Secretary of the Interior Kenneth Salazar noted that the Blackfoot Watershed is "the birthplace of the conservation concept for the 21st century."[15] While not undeserved, these accolades fail to recognize some of the powerful factors which contribute to the success of the Challenge. The two most considerable factors are the leadership present in the valley and the high levels of federal funding.[16]

Leadership: Personalities such as rancher Jim Stone, USFWS representative Greg Neudecker, and Executive Director Gary Burnett, among others, are knowledgeable, well-respected, and energetic. The leadership in the valley has been instrumental in galvanizing the community and implementing the efforts of the Challenge. Unfortunately, personalities such as these may not be found everywhere nor are they a guarantee for the future of the Challenge.

High Levels of Funding: Throughout the years, the Blackfoot Challenge has secured vast amounts of state and federal funding for projects. These large financial gains are

due to a variety of inherent attributes, such as ecosystem types, wildlife, leadership, and political environments. These situations simply do not exist in other areas. It is also unsustainable to imagine this level of funding going to many different regions; the federal pot simply isn't that large.

Challenges

While the approach taken by the Blackfoot Challenge has been inclusive, innovative, and powerful, there remain many obstacles to fulfilling its stated goals.

Local Versus Federal Interests: While the chasm between these two sides is reduced by the fact that valley dwellers are pursuing conservation-minded projects, the tension between local and federal interests still exists in the watershed. As Rich Torquemada of the BLM states, "If you get a letter [about public lands in the watershed] from someone in Chicago, does it count any less than one from Ovando [a town at the heart of the watershed]?"[17] With the funding and decisions made in the valley based almost exclusively upon the Challenge's discussions, so far, it has indeed counted less.

Inability to Confront Certain Issues: Occasionally the Challenge will step away from an issue because, as Rancher Jim Stone puts it, "It's just too hot."[18] This situation occurred in 2010 when plans were being discussed about allowing energy corporations to transport huge equipment through the valley and up to the Tar Sands of Alberta. Due to its divisiveness, the issue was not fully discussed, and no plan or decision was reached.

Allocation of Resources: Due to the limitations of a consensus-based approach, the Challenge often finds itself spending a disproportionate amount of time and resources on issues, such as weed management, which appeal to everybody. In doing so, other important projects that are more controversial are often not addressed.

Getting Everyone to the Table: Some parties have been reluctant to join in on meetings, and are often unwilling participants when they are involved. In order to more broadly represent all stakeholders, these entities need to be open to participation. At present, however, the Challenge represents more than 90% of the watershed's population.

Distrust of the Federal Government: Often concerned over the amount of influence the government has on natural resource management, many locals wish to have no part of federal endeavors. The accomplishments and respect of the Challenge are slowly eroding this opposition in the Blackfoot, yet it is still broadly prevalent across the West.

Lessons Learned

Inclusion: The inclusion of as many stakeholders as possible creates balanced solutions, builds bridges in and between communities, and presents an opportunity for learning from others.

Building Trust: A key aspect of cooperation and collaboration, trust is built through openness, respect, and results.

The 80/20 Rule: Focus on the 80% you have in common, in order to build lasting, healthy relationships in the community, before moving on to the 20% where you differ.

Consensus Can Work: By learning and applying the above lessons, an organization may create powerful, lasting results in divisive topics, even with a consensus-based procedure.

Proper Pacing: Following the "go slow to go fast" motto[19] allowing trust to build and relationships to grow is more important than immediate results. Doing so promotes sustainable solutions and successful future collaboration. Time scales here are perhaps longer than one might suspect; some experts estimate that "it takes at least 2 years to grasp the social landscape and 5 years to build the trust and credibility necessary to deliver community-based landscape conservation."[20]

Situation-Based Solutions: The Challenge demonstrates an innovative and powerful model of a community's healthy relationship with the environment. However, the factors allowing this model to flourish must be acknowledged and the transferability of its concepts examined before implementation into different communities is attempted.

Bottom-up versus Top-down: Especially in the American West, internal drivers of conservation, such as community leaders, user groups, and local agencies, have had greater success in creating lasting conservation efforts than federal or state agency "top-down" models.[21] In large part this is due to the political sentiment against big government action, especially as it relates to land management in the West.

Website Links

Much of the information from this report originated from the Blackfoot Challenge website (www.blackfootchallenge.org) and the various reports, publications, and sections therein.

Citations

[1]Kenneth Salazar, "*Secretarial Order No. 3289*," signed September 14, 2009.
[2]Jim Stone, Blackfoot Challenge Board Chair, interviewed by the author, July 23, 2013.
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[4]Ibid.
[5]George Hirschenberger, former Blackfoot Challenge BLM representative, interviewed by the author, July 23, 2013.
[6]Gary Burnett, Blackfoot Challenge Executive Director, interviewed by the author, July 23, 2013.
[7]Richard Torquemada, current Blackfoot Challenge BLM representative, interviewed by the author, July 23, 2013.
[8]The Blackfoot Challenge website, *Partners*, Accessed June 5, 2013. www.blackfootchallenge.org/Articles/?p=236.
[9]Gary Burnett. *Community-Based Approach to Conservation for the 21st Century*. (The Blackfoot Challenge: www.blackfootchallenge.org, 2013), 2.
[10]Christine Coughlin et al. *A Systematic Assessment of Collaborative Resource Management Partnerships*. PhD diss., (Ann Arbor: University of Michigan, 1999), 3.
[11]Gary Burnett, interview.
[12]Ibid.
[13]Jim Stone, interview.
[14]The Blackfoot Challenge website, Accessed June 5, 2013. www.blackfootchallenge.org.
[15]Gary Burnett. *Community-Based Approach to Conservation for the 21st Century*, 8.
[16]Matthew McKinney and Shawn Johnson, Crown of the Continent Roundtable, interviewed by the author, July 24, 2013.
[17]Richard Torquemada, interview.
[18]Jim Stone, interview.
[19]Dan Clark and Eric Austin, Gallatin Community Collaborative, interviewed by the author July 17, 2013.
[20]Gregory A. Neudecker, Allison Duvall, and James W. Stutzman. *Community-Based Landscape Conservation: a Roadmap for the Future*, 220.
[21]Gary L. Sullivan, *Partnerships in Practice: the Fine Line Between Success and Failure in Transactions of the North American Wildlife and Natural Resources Conference*, vol. 62, (Wildlife Management Institute, 1997), 197.

Large Landscape Conservation Case Study
American Prairie Reserve
By Aaron Chin

Location

The American Prairie Reserve (APR) is located in northeastern Montana in Phillips County, roughly an hour south of Malta, Montana. The lands currently owned and leased by the reserve are displayed in **Figure 1**, along with nearby state, federal, and private lands. Settlement of northeastern Montana can be traced back from the mid-1800s to early 1900s when the U.S. government encouraged rural settlement and development through the Homestead Act of 1862, and other pieces of federal legislation meant to encourage rural settlement, such as the Desert Land Act of 1877, the Desert Lands Entry Act of 1909, the Enlarged Homestead Act of 1909, and the Stock Raising Homestead Act of 1915.[1] Despite arid conditions that can make agriculture difficult and/or unpredictable, ranching and farming are mainstays of Phillips County's economy. Public lands in the county are often leased for ranching, and private livestock operations are conducted on both federal and private lands, playing an important role in the region's economic vitality.

Additionally, the APR is located in the Department of Interior's Plains and Prairie Pothole Landscape Conservation Cooperative. Created in 2010, the Landscape Conservation Cooperatives are meant to improve coordination among federal agencies for landscape-scale management. The Plains and Prairie Potholes Landscape Conservation Cooperative is seen in **Figure 2**.

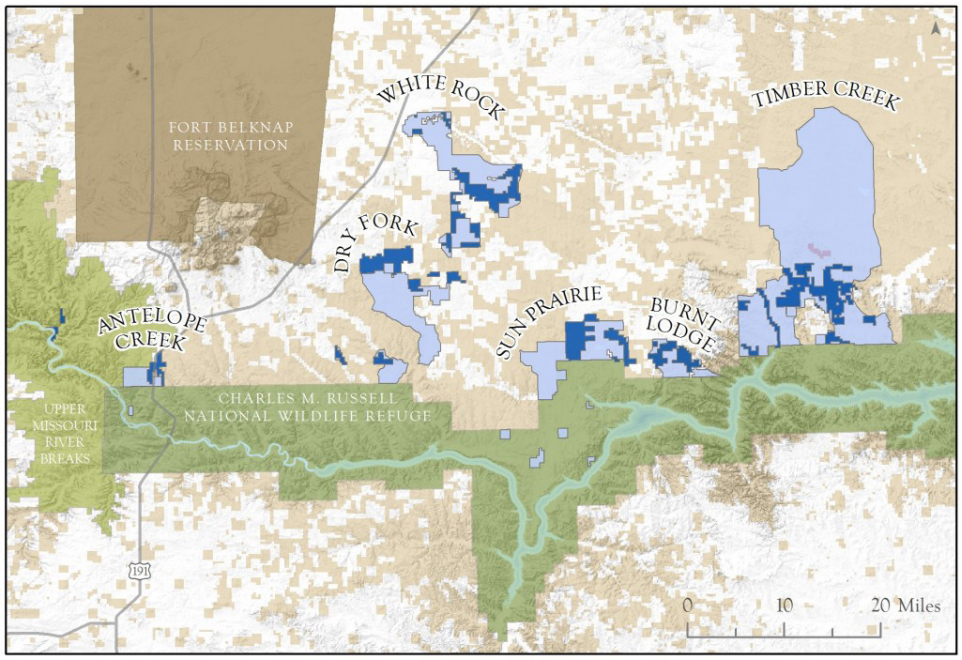
Date of Origin

The Prairie Foundation was established in June of 2001 and eventually renamed the American Prairie Reserve (APR).[2] The establishment of the APR was, in some part, catalyzed by the Nature Conservancy (TNC) report on the ecological importance of the Northern Great Plains and a

About the Author:
Aaron Chin (Colorado College class of '14) is a 2013-14 Student Researcher for the State of the Rockies Project.

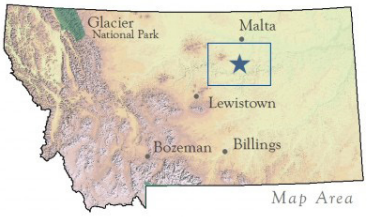
Brendan Boepple

Figure 1: American Prairie Reserve Lands



American Prairie Reserve: Current Extent

- APR Deeded
- APR Leased
- Option to Purchase
- Public Land
- National Wildlife Refuge
- National Monument
- Reservation
- Private Land



Source: The American Prairie Foundation. The American Prairie Reserve website, *Map and Directions*, http://www.americanprairie.org/visit/where-is-the-reserve/. Accessed: January 13, 2014.

subsequent conservation initiative by the World Wildlife Fund in the Montana Glaciated Plains, one of the key areas identified by the TNC.[3]

Size of Initiative

As of 2013, APR owned and/or leased nearly 274,000 acres of deeded and public land, and its ultimate objective is to eventually connect roughly three million acres of land. Katy Teson of the American Prairie Reserve says that this goal will be accomplished "by purchasing about 500,000 private acres to connect to 3 million acres of existing public lands, including the 1.1 million acre Charles M. Russell National Wildlife Refuge."[4]

Summary

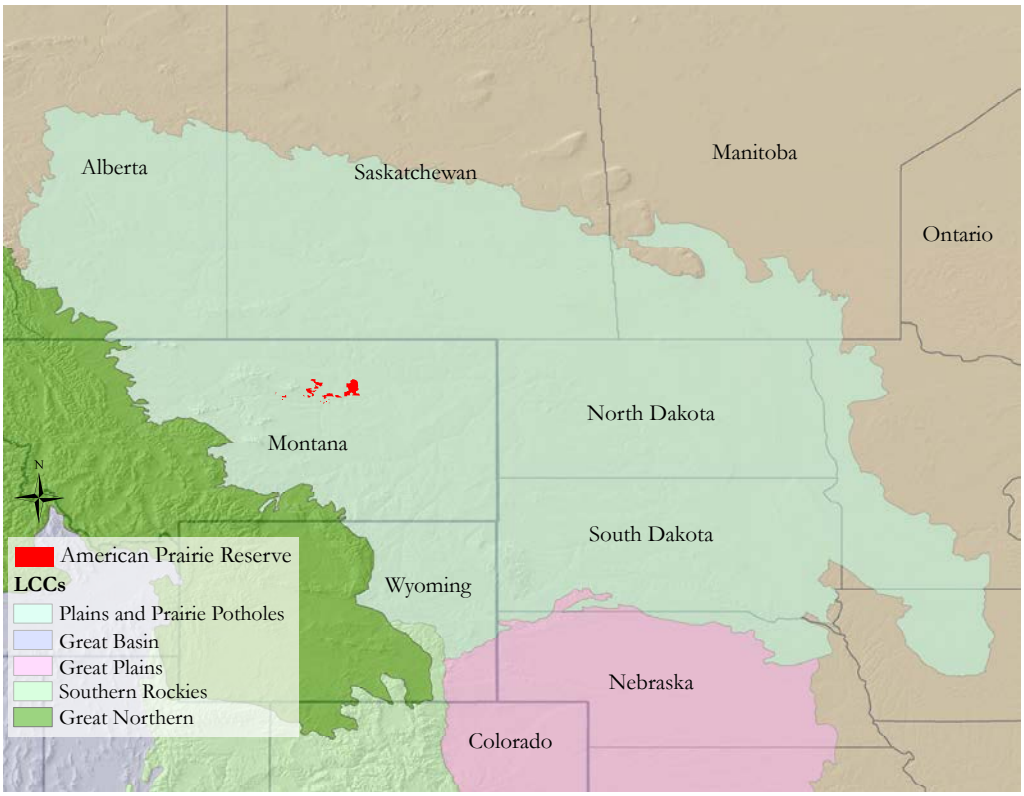
The American Prairie Reserve is a nonprofit organization that has been working since 2002 to develop the reserve in northeastern Montana. The reserve is located within the Department of Interior's Plains and Prairie Potholes Landscape Conservation Cooperative region. The name, "Prairie Pothole," refers to the thousands of shallow prairie wetlands that are important habitat for the fly-over of North America's migratory waterfowl; although the area consists of only 10% of breeding habitat in North America, it supports roughly 50% of North America's waterfowl.[5] The land in Phillips County is especially attractive to conservationists, as 90-95% of the grassland ecosystem is still intact. The reintroduction of bison is a locally controversial issue, yet still an ecologically and symbolically significant element of the Northern Great Prairie. The APR's objective is to create an expansive wildlife reserve to sustain the prairie ecosystem and create an area for ecotourism. If successful, the APR would be the largest reserve of its kind.

Differing from other conservation initiatives in the area, such as the Nature Conservancy's Matador Ranch, the APR seeks to perpetually own and control the land it acquires. This model is reflective of a shift in conservation strategy towards private conservation efforts, which allows the respective actor an unprecedented level of agency. By definition, a collaborative effort, such as the Blackfoot Challenge, must be sensitive to the interests of all parties. While the collaborative approach has its merits, there are times when an issue is too contentious to resolve, thereby creating an ambiguous or incomplete management directive.[6] Although the APR may collaborate with other organizations, such as the U.S. Fish and Wildlife Service and World Wildlife Fund (WWF), in scientific research, management of the reserve is not directly affected by the APR's partnerships. Such agency allows the APR to manage the deeded lands on the reserve, exclusively for its conservation goals, which, due to local mistrust of external conservation organizations, would be very difficult to accomplish through a partnership. The APR influences decisions regarding the reserve's leased lands; however management is still left to the leasing agencies, such as the state of Montana and the federal Bureau of Land Management (BLM).

The enhancement of natural resources is not a new practice to Phillips County. Due to the integral connection between land quality and livelihood, credit must be given to the ranching community for decades of work, maintaining the quality of Phillips County's grasslands. Historically, as primary stakeholders, the ranching community has and continues to exhibit exemplary stewardship of the land, and some ranching families have gone so far as to establish a nonprofit organization they call the Ranchers Stewardship Alliance. In an effort to promote "the ecological, social and economic conditions" that support ranching and "pastoral heritage," the Ranchers Stewardship Alliance engages its participants through "collaboration, education innovation and sound science."[7] Although cattle are often processed and sold outside the county, the livestock are grazed on Phillips County's prairielands, essentially making environmental quality a vital aspect to the sustainability of livestock cultivation.

Because ranchers are able to manage for livestock, while still maintaining or enhancing local ecological conditions, the prairieland in Phillips County has remained ecologically healthy after years of agricultural use. Ironically, the

Figure 2: Department of Interior Plains and Prairie Potholes Landscape Conservation Cooperative



Source: American Prairie Reserve, U.S. Fish and Wildlife Service, ESRI Data, SRTM.

efficacy of local management efforts has attracted the attention of outside conservation organizations; in 1999, the Nature Conservancy released a report entitled, "Ecoregional Planning in the Northern Great Plains Steppe," outlining the ecological value of the Phillips County area and essentially providing the APR with an impetus for conservation. The establishment of the American Prairie Reserve is indicative of an emerging dichotomy in conservation management between local stakeholders and external actors (i.e., the APR or WWF).

The APR has taken an active role in attempting to restore the prairieland to its original state and has been active in the reintroduction of native species, such as the buffalo, to the reserve. The APR partners with a number of private and public institutions, such as the World Wildlife Fund and the U.S. Fish and Wildlife Service, to pursue research in areas pertinent to restoration efforts. Parts of the reserve are enrolled in the Block Management Program, which allows select parts of the reserve to be open to the public for hunting. Areas that are open to hunting are managed by the Montana Fish Wildlife and Parks Service and the Bureau of Land Management.

For more than a decade, APR has been buying land from surrounding ranchers, which has been a source of controversy for ranchers to whom the land has been passed down for generations. The APR currently owns or leases 274,000 acres, which under current plans will eventually be linked up with three million more acres of public land.[8] Although the APR professes that the integrity of its land acquisition methods are maintained by paying fair market prices for properties purchased, surrounding ranchers allege that the APR's acquisition of large swaths of land has inflated property values, essentially hampering the expansion of local private ranches.[9] Hearsay among the ranching community alleges that the APR is involved in dubious land acquisition methods by plotting neighbors against each other or relaying false information, so as to nudge a sale along.[10]

Regardless of the validity of claims regarding the ethics of the APR's land acquisition methods, there is widespread opposition to conservation efforts in Phillips County. A large part of this sentiment can be traced back to the Clinton Era and the establishment of the Upper Missouri River Breaks National Monument. In the waning hours of his presidency, President Clinton converted 377,000 acres of BLM land to the monument, thereby in the ranchers' view, diminishing its utility to their community.[11] Despite counter resolutions in the Montana House and Senate, the monument was authorized through the 1906 Antiquities Act.

A leaked Department of the Interior memo in 2010, outlining hypothetical plans for a 13 million-acre monument in the area, only deepened the level of mistrust of the federal government in Phillips County. Outside conservation organizations are also viewed with a similar hostility.[12] "We can't recreate our way out of this," says Marko Manoukian, head of the Phillips County Livestock Association when asked about the potential inflow of ecotourism dollars to Phillips County.[13] To a vocal portion of Phillips County, external conservation initiatives represent the prioritization of natural landscape over ranchers and threaten the socio-economic vitality of Phillips County.[14] Due to past negative interactions with federal conservation initiatives, the APR must operate in a socio-geographic milieu that has been conditioned to be opposed to conservation efforts since the Clinton Administration.[15]

Governance

Leadership: The APR staff is strategically guided by a Board of Directors. The APR's National Council and Scientific Advisory Council provide the staff with insight on the conservation management aspects of the reserve.

Structure: The APR is managed by a full-time staff, a Board of Directors, a National Council and a Scientific Advisory Council. The councils play a critical role in decision-making, as the members come from a wide range of backgrounds.

Authority: The APR's capacity to meet reserve management goals is largely defined by its ability to have full control over the reserve. It is imperative that the organization acquire key pieces of land, which would otherwise be managed for ranching rather than wildlife.

Participants

Key Partners:

- •National Geographic
- •Friends of American Serengeti
- •World Wildlife Fund
- •Charles M. Russell National Wildlife Refuge
- •Montana Fish, Wildlife and Parks
- •Wildlife Conservation Society
- •Montana Land Reliance
- •Bureau of Land Management

The APR has worked closely with Charles M. Russell National Wildlife Refuge to expand habitat conditions surrounding the reserve. The APR has purchased ranches with grazing rights on over 63,000 acres of the refuge and has since retired these lands from grazing and given the Fish and Wildlife Service full authority in wildlife habitat management. With around forty miles of adjacent lands, James Barnett, Reserve Supervisor at the APR, foresees a future of cooperation and collaboration in conservation efforts.[16]

Mission and Primary Objectives

Mission: The mission statement of the American Prairie Reserve is to "create and manage a prairie-based wildlife reserve that, when combined with public lands already devoted to wildlife, will protect a unique natural habitat, provide lasting economic benefits and improve public access to and enjoyment of the prairie landscape."[17]

Objectives: The APR's primary objective is to obtain and manage as much land as needed to fit its conservation goals, without going through the bureaucratic processes experienced by most federal agencies. According to APR Reserve Supervisor James Barnett, acquiring and owning land are essential components to the APR's management strategy, as they are allowed to implement more authority compared to a lease agreement with the federal government or a conservation easement program with a private owner.[18]

Motivations for Initiating Effort

The original purpose of the APR is to purchase, hold and manage private land for the enjoyment of the public. Private ownership has become a key part of the APR's strategy because it allows them to bypass the bureaucratic and volatile elements of partnerships with government agencies, as well as the conflicts that may arise from differing management goals with a private partnership.

Major Strategies

Research: The APR allows a wide array of public and private institutions to conduct research on its property. The APR is part of the remaining 5% of prairie dogs' historic range and is cooperating with an ongoing U.S. Fish and Wildlife study regarding a possible vaccine for a disease that has devastated local prairie dog and black-footed ferret populations.[19]

Planning: The APR was founded in 1999 after a Nature Conservancy report was published entitled, "Ecoregional Planning in the Northern Great Plains Steppe." This provided an impetus to establish a prairie reserve that could be privately controlled, so as to allow for unilateral implementation of conservation directives. The APR purchases land from willing parties through a third party, real estate appraiser that establishes a price based on recent sales in the area. Land transfer agreements can be made to ease the property transfer process; these arrangements include, "long-term leasebacks and payouts, exchanges, tax and estate planning tools and other approaches that may benefit the seller."[20]

Regulation: The APR collaborates with the neighboring Charles M. Russell National Wildlife Refuge, other environmental organizations, and state and federal agencies to achieve conservation goals and establish new ones. The APR is currently a member of Montana Fish Wildlife and Parks' Block Program, which opens a privately owned area to the public for hunting. The Block Program areas are jointly managed. The public is free to hunt, hike, camp and bicycle in the reserve.

Restoration: The APR has an on-site staff of ranch managers to oversee restoration projects on a daily basis. Restoration projects are determined by research, which is conducted by the APR's environmental consultant staff and/or in collaboration with a number of private and public institutions:

- • World Wildlife Fund
- • National Geographic
- • Montana Fish, Wildlife & Parks
- • Bureau of Land Management
- • United States Fish and Wildlife Service
- •Researchers from various universities

The APR is currently working to restore native species and habitat to the reserve. The APR reintroduced genetically pure bison to the reserve in 2005 and worked to restore prairie dog populations that are vital to the livelihood of other native species. The APR has also conducted studies, analyzing the feasibility of the reintroduction of species, such as the Swift Fox. The APR partners with a variety of entities including the national and state agencies, other refuges, and environmental nonprofits.

Communication: The American Prairie Reserve puts together an annual report that is released in PDF format on its website. This document summarizes the organization's progress and gives a general assessment of the ecological state of the reserve. The report also serves to educate the reader on ways that the APR is working to restore and protect native wildlife. It explains its mission statement and the methods of fulfilling the organization's goals. The APR also puts out an annual Bison Report, detailing the health of the reserve's bison herd. The APR also "produces and widely distributes quarterly newsletters, visitor maps, economic impact brochures and other status updates related to [their] activities, research, and habitat accumulation."[21]

Ecosystem Characteristics and Threats

The Ecosystem: The Northern Great Plains are made up of short and tall grasslands and prairie ecosystems. This

ecosystem is fundamental to migratory birds' travel patterns, as well as native species. Wetlands in the region are home to animals, such as beavers, seventeen different species of fish, and a vast array of bird species. The reserve acts as necessary low elevation habitat space for most native wildlife in the Rocky Mountain West. These low elevation prairies provide critical forage that is available in the winter season. Without a way to access these areas, wildlife--such as elk, mule deer, bison, and pronghorn antelope--would not be able to survive harsh winters. Similarly, the APR acts as a transition area for these animals and offers the chance for separate populations to interbreed.[22]

Threats: Livestock interests are the greatest threat to the region, due to the lands' suitability for agricultural grazing. Litigation efforts from livestock advocates are a significant barrier to expansion. First Nation voices support the reserve and encourage the species reintroductions and further conservation.

Monitoring, Assessment, and Evaluation

Baseline Conditions: The reserve's prairie lands are 90-95% intact native prairie ecosystem. An additional two million acres are potentially available to the reserve, which if they were acquired, would establish an important regional wildlife corridor.[23]

Monitoring: The reserve is engaged in a number of ongoing studies concerning local plant and animal species, including cougars, pronghorn and the long-billed curlew. Research is done in concert with other public and private institutions, including the World Wildlife Fund and the U.S. Fish and Wildlife Service.

Evaluation: Evaluation focuses on wildlife sightings and counts in order to determine how native species are responding to the habitat conservation strategies. Currently the annual report discusses surveys on biodiversity and species richness. The presence of keystone species, such as the blackfoot ferret, is used as an indication of the general state of the ecosystem. The APR has also implemented a scale for monitoring and evaluating the reserve. This scale assesses the state of ten key environmental factors, including soil and vegetation management, herbivory patterns, frequency of fires, hydrological conditions on the reserve, temporal ecological variability, the presence of herbivorous mammals, the fate of ungulate production (how much of the ungulate production is harvested), the presence of large predators, habitat fragmentation, and the size of the management units.[24]

Accomplishments and Impacts

Land Acquisition and Conservation: The APR region has some of the largest blocks of untilled prairie in North America. Currently, APR owns and/or leases 274,000 acres of public lands.

Bison Reintroduction: The American Prairie Reserve reintroduced a bison herd to the prairie in 2005 after nearly 120 years of absence. The bison are an integral component to the prairie's original ecosystem by maintaining diversity among local grass species. The herd is thriving and has the potential to become the largest herd in the United States.

Habitat Restoration and Monitoring: The APR conducts a range of projects monitoring wildlife species in the reserve, including prairie dogs, bison, and a wide range of grassland birds. The organization has also worked closely with the WWF to restore several freshwater habitats and riparian corridors.

Recreation: The APR is open for public recreation, including camping, hunting, horseback riding and bicycling. Visitors also have the opportunity to learn about the reserve through educational programs covering the region's ecological and cultural heritage.[25]

Factors Facilitating Progress: The American Prairie Reserve's donor roll includes John Mars and Forrest Mars Jr., German retail baron Erivan Haub and Susan Packard Orr.[26] Given the broad range of actors supporting the American Prairie Reserve's mission, the American Prairie Reserve does not face the budgetary issues faced by other environmental organizations and is granted an unprecedented level of agency in its mission. Additionally, the local municipalities are dominated by a strong Native American presence, which tends to lend support to local and regional conservation initiatives.

Challenges: Phillips County residents express explicit opposition to what they perceive to be external conservation efforts. This opinion was catalyzed by a leaked Department of Interior memo that cited large swaths of Phillips County and neighboring Valley County as a possible location for a new national monument.[27] Large conservation organizations, such as the WWF and APR, are viewed in contempt by local residents. Furthermore, purchasing land inflates land prices, which makes it more difficult for local ranchers to purchase more land and expand their grazing lands.

Lessons Learned: The APR operates in a socio-political context in which local residents are opposed in principle to the type of conservation strategy that the APR is pursuing. However, locals are faced with a dichotomy: land owners value and respect private property, thus APR's use of "market tools" to pay a fair price for lands makes its tactics compatible, at least in theory, with the very conservative, market-based values in the region.

Another factor that makes the APR unique is the emphasis in their conservation strategy of acquiring and holding lands, as opposed to selling or leasing it to private owners, as The Nature Conservancy's Matador Ranch does in Phillips County. Unlike many other environmental organizations in the nonprofit sector, the APR has no foreseeable financing constraints and the only obstacle to expanding the reserve is finding enough willing sellers of property.

Website Links

The American Prairie Reserve website (http://www.americanprairie.org) has a plethora of information on its work. Additionally, APR's annual report (http://www.americanprairie.org/wp-content/uploads/2011/03/GeneralBrochure_web.pdf) is a great resource regarding the recent undertakings of the reserve. The annual bison report (http://www.americanprairie.org/projectprogress/reports/) also provides crucial important information on the state of the reserve's bison herd.

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Bison roam in Yellowstone National Park. David Spiegel

Large Landscape Conservation Case Study

Gallatin Community Collaborative

By Sawyer Connelly

About the Author:
Sawyer Connelly (Colorado College class of '14) is a 2013-14 Student Researcher for the State of the Rockies Project.

David Spiegel

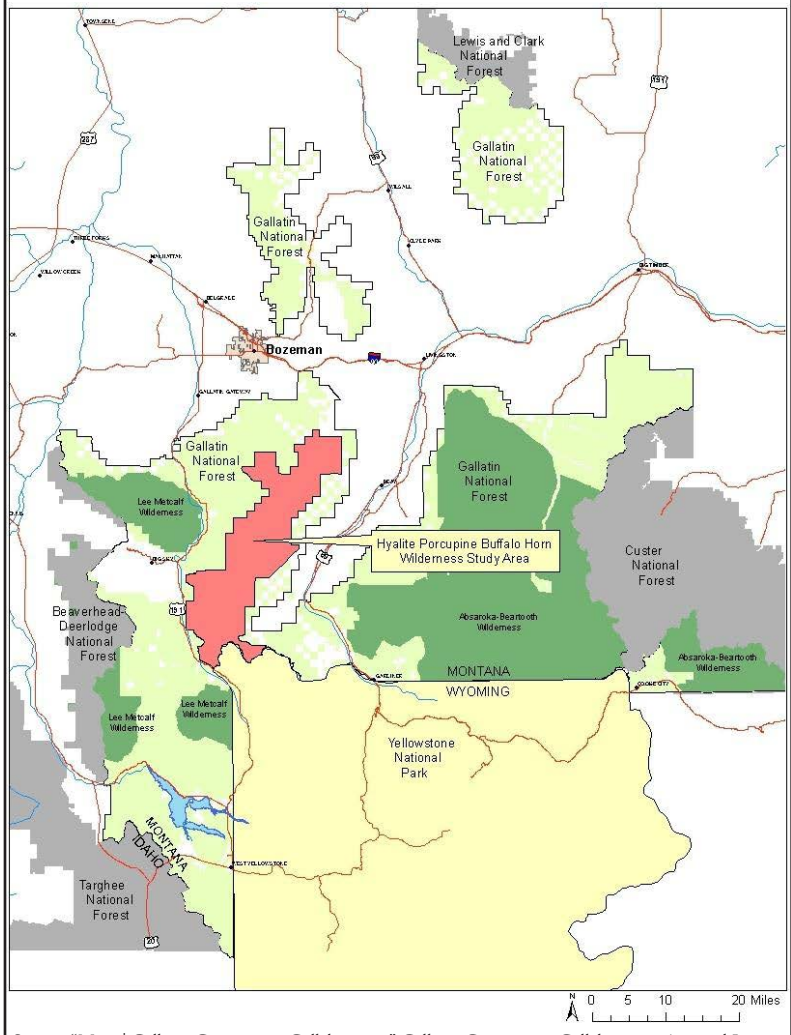
Location

The Gallatin Community Collaborative is an initiative dealing with the Hyalite Porcupine Buffalo Horn Wilderness Study Area in the Gallatin National Forest of southwestern Montana. The area borders Yellowstone National Park to the south and is a major watershed for Bozeman, Montana.[1] The focus of the initiative is depicted in **Figure 1**. The Gallatin National Forest and the Wilderness Study Area (WSA) are part of the Greater Yellowstone Eco-Region, which is situated in the Department of Interior's Great Northern Landscape Conservation Cooperative.

Date of Origin

The project began between February-May 2012. In February of 2012, following a community-wide meeting at which stakeholders in the area indicated support of the collaborative process over a judicial and administrative method, the Collaborative was formed.[2] In May 2012, the Exploratory Committee was created. The United States Forest Service and the Montana State University Extension Local Government Center teamed up to initiate the idea of creating a community collaborative to develop a long-term management plan for the WSA.

Figure 1: Hyalite Porcupine Buffalo Horn Wilderness Study Area and Surrounding Lands



Source: "Maps | Gallatin Community Collaborative." Gallatin Community Collaborative. Accessed June 29, 2013, http://gallatincollaborative.org/about-the-area/maps/.

Size of Initiative

The initiative is comprised of 155,000 acres in the heart of the Gallatin Range.[3] The Hyalite Porcupine Buffalo Horn Wilderness Study Area, the focus of the Collaborative's work, is seen in **Figure 2**.

Summary

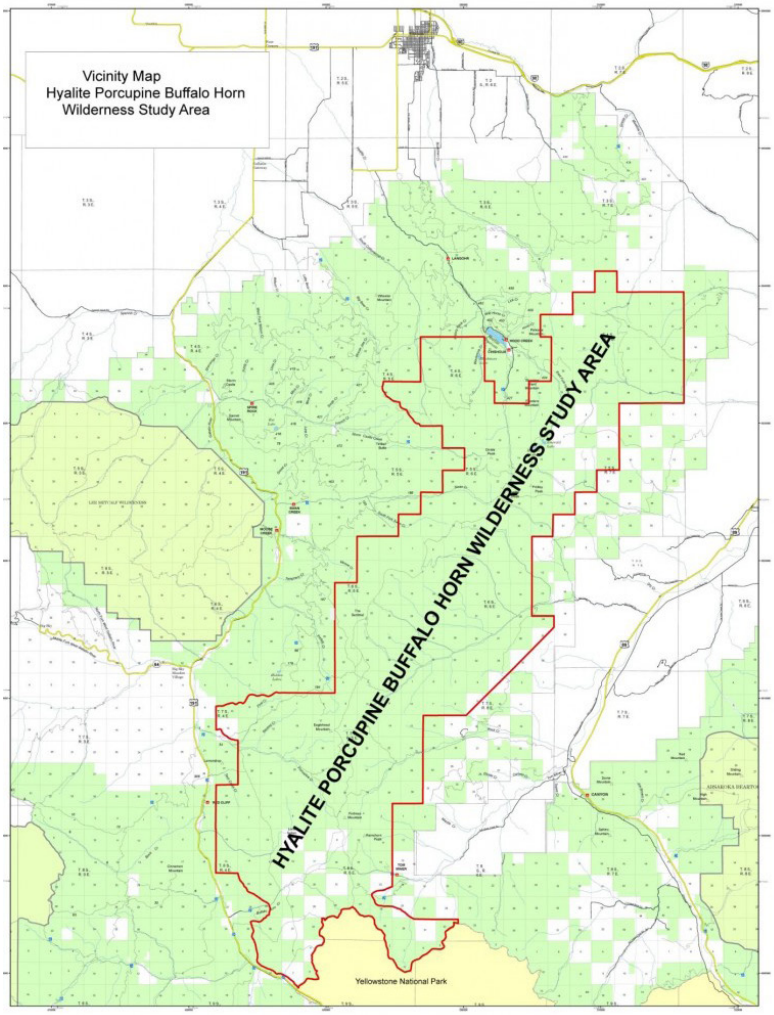
The Gallatin Community Collaborative deals with a 155,000-acre piece of wilderness study area that lies in the Gallatin National Forest in southwestern Montana. The area borders Yellowstone National Park on the park's northern boundary and is part of the Greater Yellowstone Eco-Region. The Gallatin Range provides 80% of Bozeman's surface water and is considered by all who live in the area to provide world-class recreation and excellent wildlife habitat in abundance equal to that of Yellowstone National Park. The communities of Livingston, Big Sky, Gardiner, West Yellowstone, and Bozeman all rely on the range for their recreation and tourism industries.[4]

In the middle of the Gallatin Range is the Hyalite Porcupine Buffalo Horn Wilderness Study Area (HPBHWSA). The WSA, consisting of 155,000 acres, has been under debate for the last three decades in regards to its management and protection. HPBHWSA was designated a Wilderness Study Area in 1977 by Congress under the Montana Wilderness Study Act.[5] This decision was made in order to preserve the existing wilderness characteristics until a long-term management and protection plan could be finalized.

As the cities and towns around this WSA develop and grow, so has the interest in HPBHWSA for various uses and values. In February of 2012, the U.S. Forest Service (USFS) held a public meeting to discuss the Gallatin National Forest and gauge the community's interest in pursuing a collaborative discussion. It was then decided that the Montana State University Extension Local Government Center would help create the collaborative. It is, therefore, the goal of the Gallatin Community Collaborative to look at the area and establish a community-driven vision for the future, noting that: "With such extraordinary natural and recreational assets at stake, a long-term, community-driven vision for this area is more important than ever."[6]

The community collaborative approach to solving this problem has been stressed as being incredibly important for the future management of the HPBHWSA. Many different stakeholders and organizations are involved who share very different and often opposing viewpoints on how they hope to see the HPBHWSA managed. The key parties involved are off-highway vehicle (OHV) recreationalists, nonmotorized recreationalists (mountain bikers/hikers/equestrians), outdoorsmen, conservationists, and the USFS which manages the area; thus a community collaborative approach is crucial.[7] This method will allow everyone to sit down and develop a sense of trust and commonality, despite coming to the table with different goals, and to create a solution amendable to all stakeholders.

Figure 2: Hyalite Porcupine Buffalo Horn Wilderness Study Area and Adjacent Lands



Source: "Maps | Gallatin Community Collaborative." Gallatin Community Collaborative. Accessed June 29, 2013, http://gallatincollaborative.org/about-the-area/maps/.

Governance

Leadership: Fifteen members of the Exploratory Committee serve as "technical support or architects, who can help build a fair, inclusive, transparent, fact-based, and civil process that stakeholders then invigorate with their own ideas, concerns, and interests."[8] The main purpose of the Exploratory Committee is to design a process for a community-wide collaborative that works toward a long-term resolution to the WSA and related issues. The values brought to the table by the Exploratory Committee were: "Inclusions, Transparency, Respect, Leadership, Responsibility, Ownership, Accountability, and Commitment."[9] Currently, an external facilitator has been selected and hired to design and manage the collaborative process. That work began in the fall of 2013 and will continue through, at least, the first half of 2014.[10]

Structure: On March 9, 2012, the Exploratory Committee issued a survery to all people who attended the initial meeting regarding the personal involvement each person would be willing to commit to the Collaborative. Some of the questions included: "How long could you commit to participating in a collaborative process?"; "How much time are you willing or able to commit each month?"; and what key issues people thought should be addressed in the collaborative and the key values that should drive the management of the WSA.[11] There was also a similar survey for organizational interests looking at whether various organizations would participate and the resources they would be able to bring to the collaborative. The general framework for the Collaborative is depicted in **Figure 3.**

Type of Initiative: The Gallatin Community Collaborative is a partnership between the various parties who have stakes or interests in the Hyalite Porcupine Buffalo Horn Wilderness Study Area.

Authority: The USFS manages the Hyalite Porcupine Buffalo Horn Wilderness Study Area as part of the related national forests. The USFS, along with the Montana State University Extension Local Government Center, decided upon the community collaborative process and have tasked the Exploratory Committee with exploring the idea. In addition, the Exploratory Committee is tasked with establishing the ground rules for the collaborative process.

Participants

Key Partners: Members of the Exploratory Committee represent the various parties involved. **Figure 4** shows the results from the initial meeting survey regarding community members and how their interests align. Anyone who wants to participate in the Collaborative may do so, but the four major parties represented are:

- Off highway vehicle users
- Nonmotorized recreationalists (mountain bikers/hikers/equestrian)
- Outdoorsmen (hunting and fishing)
- Conservationists
- USFS
- Montana State University Extension Local Government

Affiliated Partners: There are no affiliated partners although some academics from Montana State University are standing as overseers in order to study the Collaborative.

Mission and Primary Objectives

Mission: "The Exploratory Committee's purpose is to initiate a community-driven collaboration for the HPBH WSA that is fair, transparent, inclusive, fact-based and civil."[12]

Objectives: "Our vision is for a community-wide collaborative that achieves a broad, adaptive and durable resolution, of all the interests involving the HPBH WSA, that can be implemented."[13]

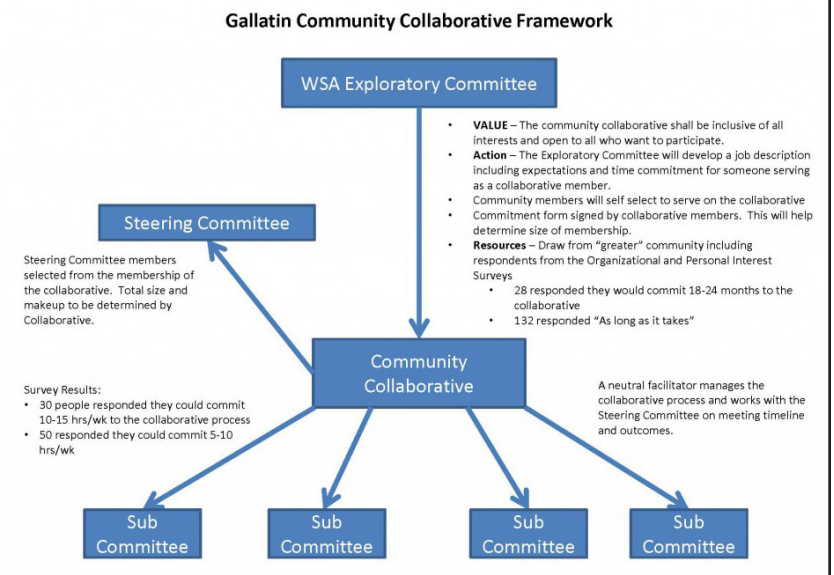
Motivations for Initiating Effort

To develop a long-term management strategy for the Hyalite Porcupine Buffalo Horn Wilderness Study Area so that all parties involved feel satisfied with the decision and all stakeholders are able to use the resources of the WSA, while protecting it and ensuring its longevity.

Major Strategies

A list of strategies, prepared by the U.S. Institute for Environmental Conflict Resolution, acts as a guide for how

Figure 3: Gallatin Community Collaborative Framework



Source: "Collaborative Framework | Gallatin Community Collaborative." Gallatin Community Collaborative. Accessed July 9, 2013, http://gallatincollaborative.org/about-us/collaborative-framework/.

the Gallatin Community Collaborative hopes to create a long-term management plan for the Hyalite Porcupine Buffalo Horn Wilderness Study Area. As the members of the Collaborative state, "It is important for community members interested in participating in the Gallatin Collaborative to understand the Principles of Collaboration."[14] The list of principles, outlined by the U.S. Institute for Environmental Conflict Resolution, is seen in **Figure 5**.

Ecosystem Characteristics and Threats

The Ecosystem: The Hyalite Porcupine Buffalo Horn Wilderness Study Area was designated WSA in 1977. It consists of approximately 155,000 acres of the northern Gallatin Range between the Gallatin and Yellowstone Rivers. The area extends south from the Hyalite Peaks along the Gallatin crest to the northwestern corner of Yellowstone National Park. The following description of the environment is from the Gallatin Community Collaborative website.

"The HPBH WSA's topography is highly variable. The northern portion of the study area contains jagged peaks, U-shaped valleys, and cirque basins. A more moderate topography is found in the remainder of the WSA. Elevations range from approximately 5,500 feet to over 10,300 feet. Prominent peaks include Mount Blackmore, Mount Bole, Hyalite Peak, Eaglehead Mountain, and Fortress Mountain. Major streams include the headwaters of Hyalite, Bozeman, Trail, Eightmile, Big, Rock, Tom Miner, Buffalo Horn, Porcupine, Portal, Moose, Swan, Squaw, and South Cottonwood Creeks. The City of Bozeman is dependent on the Bozeman and Hyalite drainages for municipal water, and the headwaters of both are partially contained within the HPBH WSA.

The HPBH WSA supports diverse vegetation communities. At the lowest elevations grasslands exist, which then transition into Douglas fir and/or limber pine stands. At higher elevations, lodgepole pine, spruce, and subalpine forests are found. The highest elevations contain whitebark pine and, beyond the timberline, alpine meadows. Riparian areas within the HPBH WSA support wetland vegetation, are highly productive, and provide protection against high flow forces.

The variety of HPBH WSA habitats provide for a wide range of wildlife species. Important species found within the WSA include bighorn sheep, Rocky Mountain elk, grizzly bear, moose, wolverine, Arctic grayling, and westslope and Yellowstone cutthroat trout."[15]

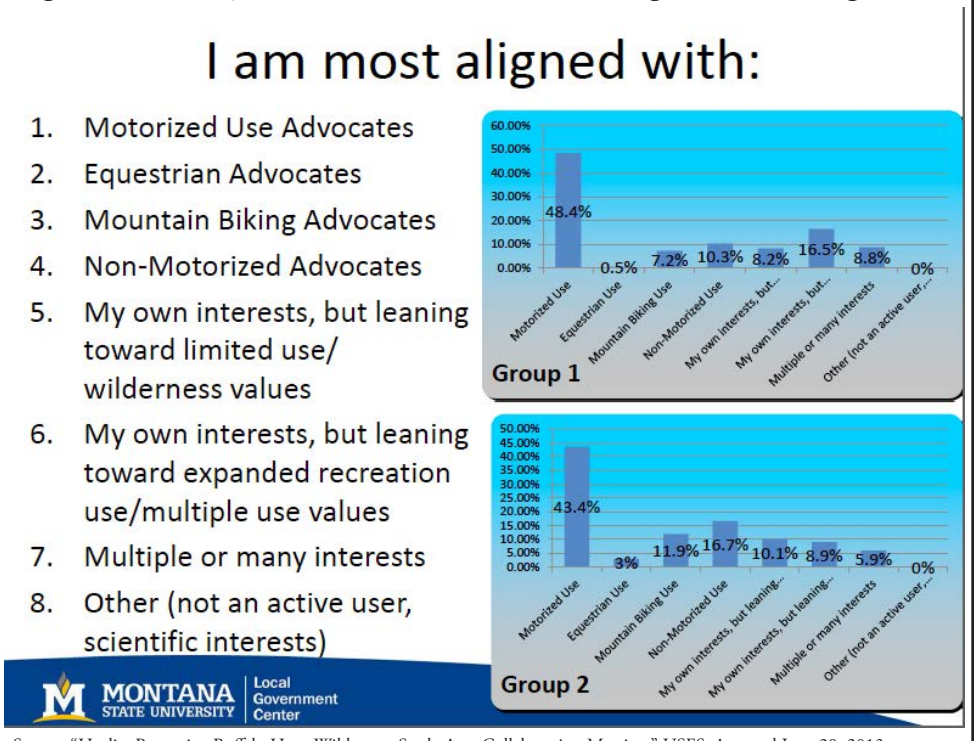
Threats:

Climate Change: As climate variations begin to change, ecosystems will respond by shifting farther up in elevation to colder temperatures. Warmer temperatures will also push certain species out of the area that require cold winter temperatures for survival.

Disconnected Populations: The most important factor for species survival is suitable reproductive partners. With interstates and roads disconnecting the greater Yellowstone ecosystem, species genetics may become limited, causing interbreeding to the detriment of the population.

Greater Yellowstone ecosystem is currently designated as national park, forest, and wilderness. The interstate

Figure 4: Survey Results from Initial Meeting- Interest Alignment



Source: "Hyalite Porcupine Buffalo Horn Wilderness Study Area Collaboration Meeting." USFS. Accessed June 28, 2013 www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5356478.pdf.

Figure 5: Collaboration Principles Prepared by the U.S. Institute for Environmental Conflict Resolution	
Informed Commitment	Confirm willingness and availability of appropriate agency leadership and staff at all levels to commit to principles of engagement; ensure commitment to participate in good faith with open mindset to new perspectives.
Balanced, Voluntary Representation	Ensure balanced inclusion of affected/concerned interests; all parties should be willing and able to participate and select their own representatives.
Group Autonomy	Engage with all participants in developing and governing process; including choice of consensus-based decision rules; seek assistance as needed from impartial facilitator/mediator selected by and accountable to all parties.
Informed Process	Seek agreement on how to share, test and apply relevant information (scientific, cultural, technical, etc.) among participants; ensure relevant information is accessible and understandable by all participants.
Accountability	Participate in the process directly, fully, and in good faith; be accountable to all participants, as well as agency representatives and the public.
Openness	Ensure all participants and public are fully informed in a timely manner of the purpose and objectives of process; communicate agency authorities, requirements and constraints; uphold confidentiality rules and agreements as required for particular proceedings.
Timeliness	Ensure timely decisions and outcomes.
Implementation	Ensure decisions are implementable and consistent with federal law and policy; parties should commit to identify roles and responsibilities necessary to implement agreement; parties should agree in advance on the consequences of a party being unable to provide necessary resources or implement agreement; ensure parties will take steps to implement and obtain resources necessary to agreement."
Source: "Operating Protocol | Gallatin Community Collaborative." Gallatin Community Collaborative. Accessed July 8, 2013, http://gallatincollaborative.org/about-us/operating-protoco/.	

highways and smaller roads, that dissect the matrix of public lands, largely disconnect these areas. The HPBH WSA represents a large swath of land north to south that is protected and connected. This area lies within the Gallatin National Forest from Bozeman and reaches a southern terminus at Yellowstone National Park.

Monitoring, Assessment, and Evaluation

Baseline Conditions: Baseline conditions can be referenced by citing literature and photographs of the area from previous reports. This qualitative data can be compared to the current conditions to identify any new issues or threats. Monitoring: Monitoring for baseline conditions will include measuring temperature changes, snowpack, melt season, and species richness. This monitoring will identify the effects of climate change. This will be especially important in high alpine areas that are fragile and will respond most dramatically to climate change.

Evaluation: Maintaining this area will require direct human observations to evaluate how the ecosystem is functioning. This will require annual or more frequent trips into the area to document wildlife citing and record observations on delicate species such as aspen, which can be indicative of healthy ecosystems.

Accomplishments/Impacts

Brief Timeline:

-1977: Congress passes Public Law S. 393, the Montana Wilderness Study Act, which designates the HPBH as a wilderness study area.

-1987: The Gallatin Forest Plan is released to the public.

-2002-2007: Gallatin National Forest is revised to include a Travel Management Planning for the forest.

-2011: Court rules that Travel Management Plan does not protect the wilderness character of the forest.

Challenges

The greatest challenge this project faces is finding a long-term management solution that will be amendable to all parties involved while preserving its wilderness characteristics in accordance with the guidelines set forth by the USFS and properly managing the resources of the Hyalite Porcupine Buffalo Horn Wilderness Study Area.

Lessons Learned

- Even though the Collaborative is still in its beginning stages, there have been a few key lessons already learned.
- Inclusion is key to allowing all viewpoints and interests be brought to the table. This approach has the greatest chance of resulting in a balanced solution that addresses all stakeholders.
- By structuring a collaborative that is inclusive to all, it creates an environment in which trust can be built. The idea of trust is a keystone to the Collaborative. All parties, learning and developing trust in those with different viewpoints, allow for a strong and successful collaborative process that promotes openness, respect, and eventually a solution.

- The idea of the 80/20 rule was talked about as a way to move past differences in the collaborative and focus on what the various members have in common. The idea is to focus on the 80% of things you all have in common rather than the 20% you don't.[16]

Website Links

Much of the information in this report comes from the Gallatin Community Collaborative's website: http://gallatincollaborative.org/.

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Rockies Project Photo Contest Best iPhone Photo Winner: Ski mountaineering in the San Juan Range with Mount Sneffels in the background by Adam Young.

Spine of the Continent Expedition

Beyond Yellowstone: When Conservationists Play Offense

By Zak Podmore

The section that follows was originally featured online through the Huffington Post's Green Blog on October 1, 2013.

The first night there are colors. We start backpacking late, tramping off-trail through a dense lodgepole pine forest and reach a clearing at sunset. Wildflowers – blooming in a density and diversity unlike anything I've ever seen – crowd the top of a hill overlooking the Teton Range. Clouds burst in swirls of orange and red in front of the mountains, which rise like a crazily cut piece of cardboard pasted dark against the brilliant sky. It's a nice introduction to Wyoming.

The second night there are bears. A wilderness valley sprawls before us as we cook our mac n' cheese over a campfire. In the three hours before dark, our bear count reaches five. A lumbering black bear crosses the meadow and climbs a ridge, knocking a few rocks towards our camp in the process. Half an hour later, a lighter colored black bear descends the same route but in the opposite direction, as if on an established path from mountains to creek. We soon see the outline of a third across the valley. By this point, the sound of branches breaking a hundred yards away has each of us jumping for our bear spray, and in seconds we have five canisters of the heavy duty mace pointed at the spot where a grizzly cub bursts noisily through the brush. We can hear another bear, presumably the mother, not far behind. The cub lifts its head, sniffs, and looks in our direction. It pauses for a second and disappears the way it came. To our relief, mom follows.

This is an occupied wilderness. Most of our team is backpacking in grizzly country for the first time, and it's a new experience to have to call out around blind corners, warning bears of our presence. We're exploring the area just south of Yellowstone National Park to report on large landscape conservation efforts for the State of the Rockies Project. And simply being in the presence of the wide-ranging grizzlies is a good sign we've found a well conserved– and large– landscape. "The main thing grizzly bears need is security from people," Jonathan Proctor of Defenders of Wildlife would tell us a few weeks later. "People are the main cause of grizzly mortality." This is largely due to the fact that bears that grow accustomed to humans tend to become more dangerous than their wilder, shier counterparts and often have to be killed. According to Proctor, the low human population densities and large tracks of roadless land in Wyoming and Montana are the main reason the bears are confined to those areas. While most people tend to think of grizzlies as being at home in the mountainous forests of the Northern Rockies, they were once found in every state west of the Mississippi and ranged from Mexico to Alaska. "Grizzly bears are the ultimate omnivores," Proctor said. "They can survive on a wide variety of food sources from vegetation to fish to elk, all sorts of things, even cutworm moths. They'll eat grass. They can be found grazing out on people's lawns. It's amazing where they can survive and on what."

About the Author:
Zak Podmore (Colorado College class of '11) is a 2012-14 Expedition Manager for the State of the Rockies Project.

David Spiegel

The next morning in the bear camp, we unroll the lightweight packrafts we carried in on our backs, click together collapsible paddles, and float out onto the nearby river. We glide through meanders, quietly following a family of river otters downstream. Later in the day, we reach rapids and run some small falls and slides. It sure beats walking -- especially considering our bags were so overloaded with river gear -- even if we have to pull over every few minutes and dump the water from our boats. But when we enter Yellowstone National Park a few days later, our rafts stay rolled up and packed away. Floating any river within park boundaries is prohibited and rangers don't take the rule lightly. Kayakers who were caught running a class V section in the Black Canyon of the Yellowstone some years back were chased by a helicopter for eight hours and had their boats confiscated for several years.

The arbitrary line of the park boundary amounts to a minor inconvenience for us in the end, keeping us out of the rivers and on the trails. But for wildlife it can mean life and death. A wolf, for example, who wanders beyond park borders is legally classified as a "predator" and can be shot on sight. Now in danger of being delisted completely from the federal endangered species list, the gray wolf is caught in the midst of a fierce political battle with one side claiming they perform an essential ecological service in keeping elk and deer populations from overgrazing, and the other side concerned about the loss of livestock and big game species.

Although the future of wolves in the lower 48 remains to be determined, the reintroduction that has taken place since 1995 has generally been successful for the species. The 66 wolves first reintroduced to the region have grown to more than 1,500 in Wyoming, Idaho, and Montana.

But it's still a touchy issue, to say the least. While hitchhiking back to our car after our journey, a local tells me that more wolves mean less elk, and less elk mean noticeably worse hunting in recent years. It's a valid concern in a state that still takes sportsmanship very seriously.

"How do you tell the difference between a wolf and a coyote?" he asks me already chuckling at the punchline. "If it's dead, it's a coyote," he says, roaring with laughter. The joke has lost some of its bite since 2012, however. In most of Wyoming covering up a shot wolf by pretending it's a coyote is no longer necessary to keep the game warden off your back; now it's legal to kill wolves.

For many, Yellowstone National Park is synonymous with wildlife. Without even leaving your car, the park's famous animals are hard to ignore, as a traffic jam will instantly form wherever an elk or bison has ventured within sight of a park road. What may be less obvious to the average visitor is the extent to which the bears, bison, wolves, cougars, and elk in the park rely on the surrounding area for their survival, the area outside designated park boundaries. Even the Greater Yellowstone Coalition, a nonprofit that works on behalf of the wildlife in the park, took some time to learn this point. Jeff

The Spine of the Continent Expedition in Beartooth Wilderness, Wyoming. David Spiegel

Zak manuevers his packraft on the North Buffalo Fork River. David Spiegel

Welsch, a spokesperson for the group, explains: "We were created [in 1983] to save the grizzly bear from extinction here in the Greater Yellowstone region. It was down to less than 200 bears and biologists thought that was that. Very quickly while talking about grizzlies, it became evident that you needed more than just a park to save a species. They don't identify with political boundaries."

The Coalition began working with private landowners and various public lands agencies to knit together a network of conserved lands around the park. The approach is working. Today, there are over 600 grizzlies in Greater Yellowstone. Welsch told us the return of the bear has been a collaborative effort, which has for the most part meant learning to find shared values. "We leave all our differences aside and focus on what everybody loves about living here, which is open space, clean air, clean water. It turns out that everybody loves wildlife, it's just different in different cases. When you start doing that, you find you have more in common than you thought, and you start to trust the other guy."

Conservation biology -- a branch of science that is dedicated not just to studying life but also to ensuring its survival -- has a simple recipe for a healthy landscape called the three Cs: Cores, Corridors, and Carnivores. In Greater Yellowstone, the core area is the park itself, the world's oldest national park, which was officially designated in 1872.

Legendary environmental activist, Dave Foreman, writes in his book on reconnecting landscapes, "Even Yellowstone National Park is not big enough to maintain viable populations of the large wide-ranging mammals native to it... But if habitats are connected so that animals can move between them -- even if it's only one horny adolescent male every ten years -- then inbreeding is usually avoided."

This scientific observation has led wildlife advocates and conservationists to think big. A vision called Yellowstone to Yukon (Y2Y) has emerged to protect corridors and cores in what is one of the largest conserved landscapes in the world. In some places, connecting the cores can be as simple as an electric fence around a home or a wildlife bridge over a highway; in others it might mean a conservation easement on a ranch. It's a complicated and ambitious task, but it's not an impossible one. Unlike so many other parts of North America (and the world for that matter), the Y2Y project focuses on protecting an area that is still largely intact. Grizzlies never left, wolves have been reintroduced, and there is already enough protected land to make the vision achievable.

When conservation plays offense, what's at stake is not so much some future loss, but a linked and living landscape that's out there right now, a landscape where it is still possible to see five bears pass by a campfire in a single night.

Large Landscape Conservation Case Study
The Greater Yellowstone Coalition
By Samuel Williams

Location

Based out of Bozeman, Montana, with satellite offices in Idaho Springs, Idaho, Cody, Wyoming and Jackson, Wyoming, The Greater Yellowstone Coalition (GYC) works to protect the Greater Yellowstone Ecosystem, which includes Yellowstone and Grand Teton National Parks as its core. The area includes the national parks, the surrounding complex of national forests and wildlife refuges, and more public and private conserved lands in the states of Montana, Idaho, and Wyoming.

Within the Greater Yellowstone Ecosystem (GYE), seen in **Figure 1**, there are numerous smaller conservation areas such as Yellowstone and Grand Teton National Parks.

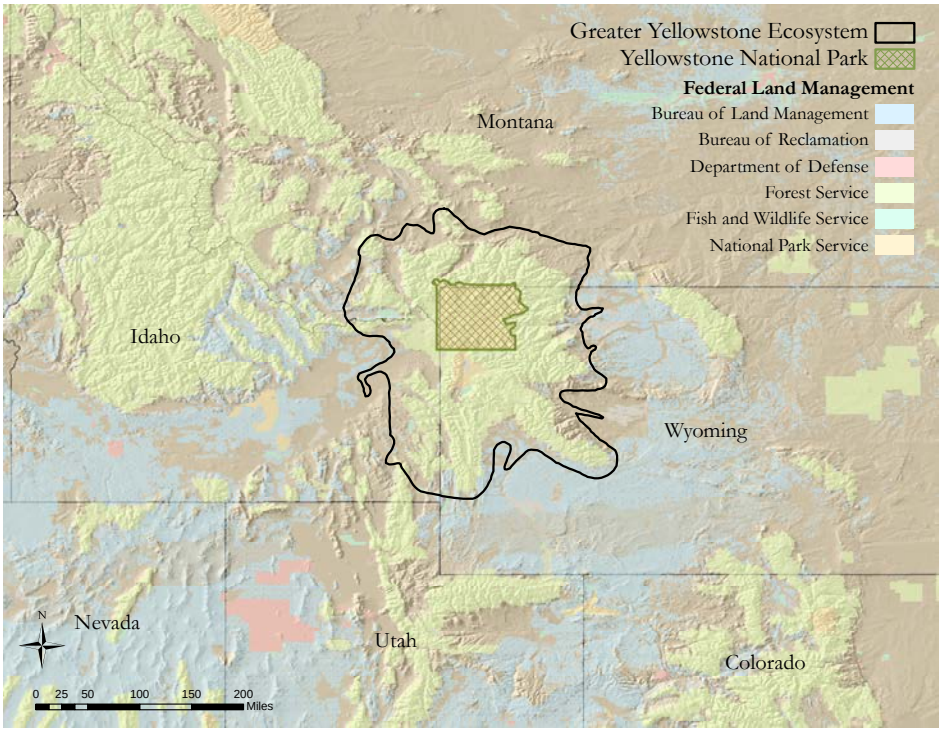
The GYE itself is contained within several larger areas, both federal and international. On the federal side, it is contained within the Department of Interior's Great Northern Landscape Conservation Cooperative (GNLCC), depicted in **Figure 2.** The multi-nation Commission on Environmental Cooperation's Northwestern Forested Mountains Ecological Region also subsumes the GYE, seen in **Figure 3.**

Created by Secretarial Order No. 3289[1] of the Department of the Interior, the GNLCC is a region where federal agencies are meant to emphasize cooperation among various groups. These regions are determined by both environmental and political factors. The Commission on Environmental Cooperation (CEC) is a collaboration between the governments of the United States, Mexico, and Canada, which pursues cooperation between these three nations in order to better manage cross-boundary natural resources. The Ecological Regions of the CEC are strictly an ecological classification of the type and location of the landscapes found in North America.

About the Author:
Samuel Williams (Colorado College class of '14) is a 2013-14 Student Researcher for the State of the Rockies Project.

David Spiegel

Figure 1: Greater Yellowstone Ecosystem



Source: National Park Service, National Atlas, ESRI Data, SRTM.

Outside of government management, the GYE is also contained within the even larger Yellowstone to Yukon bioregion, displayed in **Figure 4,** which spans over 2,000 miles from Wyoming to just below the Arctic Circle. The GYE forms a large and vital component of the greater region, which is essential for the varied wildlife found there.

Date of Origin

The GYC was created in 1983 under the premise that "an ecosystem will remain healthy and wild only if it is kept whole."[2] It was created as a response to the then dire threat of grizzly bear extinction.

Size of Initiative

While estimations vary depending upon who is performing the calculations, the Greater Yellowstone Coalition states that there are approximately 20 million acres of land in the Greater Yellowstone Ecosystem. This land exists roughly within the borders of Montana's Interstate 90 to the north, I-15 in Montana and Idaho to the west, Wyoming's I-80 to the south, and the Big Horn Mountains to the east.

Summary

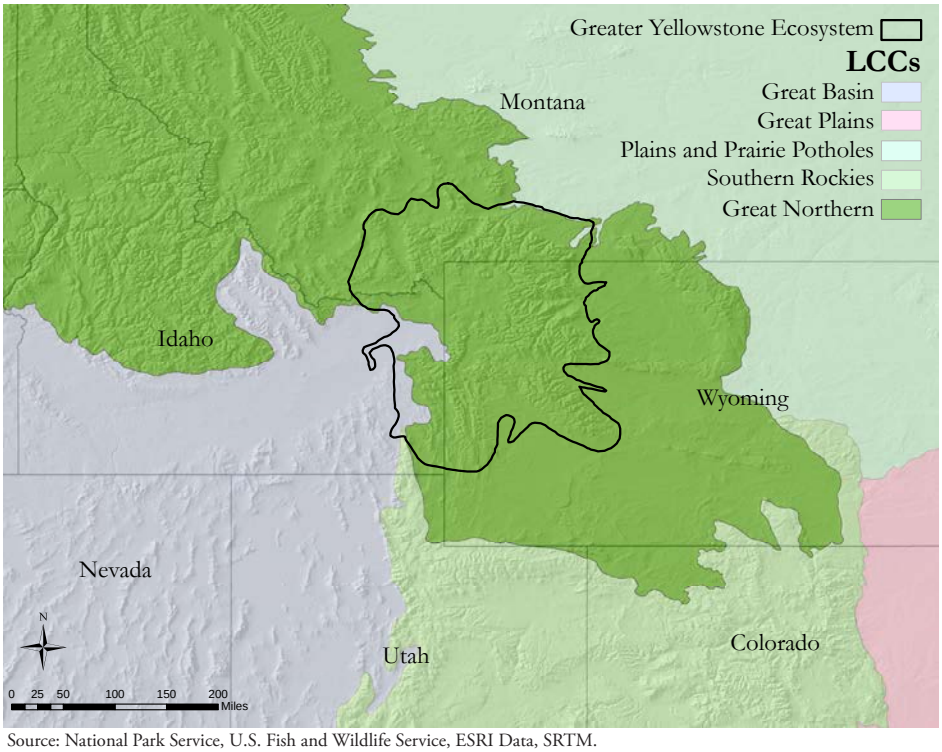
Like most large landscape conservation initiatives, the Greater Yellowstone Coalition deals with issues that cross jurisdictional boundaries, are vast in scope, and must be addressed with cooperation and creative management strategies.

As the very first national park, established in 1872, Yellowstone holds an important place in the American psyche. With its diverse wildlife, complete with mega fauna predators, such as the grizzly bear and grey wolf, the GYE is well-known and loved as a nearly intact bioregion. The large amount of interest in the area and the subsequent high levels of private funding have created a mecca for nonprofit environmental groups unlike any other. The Greater Yellowstone Ecosystem is currently home to approximately 220 conservation or environmental groups.[3] With so many groups focused on one area, unique conservation resources may be utilized, yet corresponding pressures are also created.

In much conservation work, it is the classic story of the greens versus the blue-collars, with local opposition to outside regulation, involvement, or intrusion common. This opposition remains for the GYC. In cases such as wolf and bison issues, local opposition is vocal, and not without reason. Ranchers view their livelihoods as being threatened by each of those conservation interests. For issues related to wolves, it is most obvious: periodic feeding on calves results in reductions in the number of livestock head on a ranch. When it comes to bison, conflicts between rangeland interests are different, but still seen as equally threatening to ranching communities.

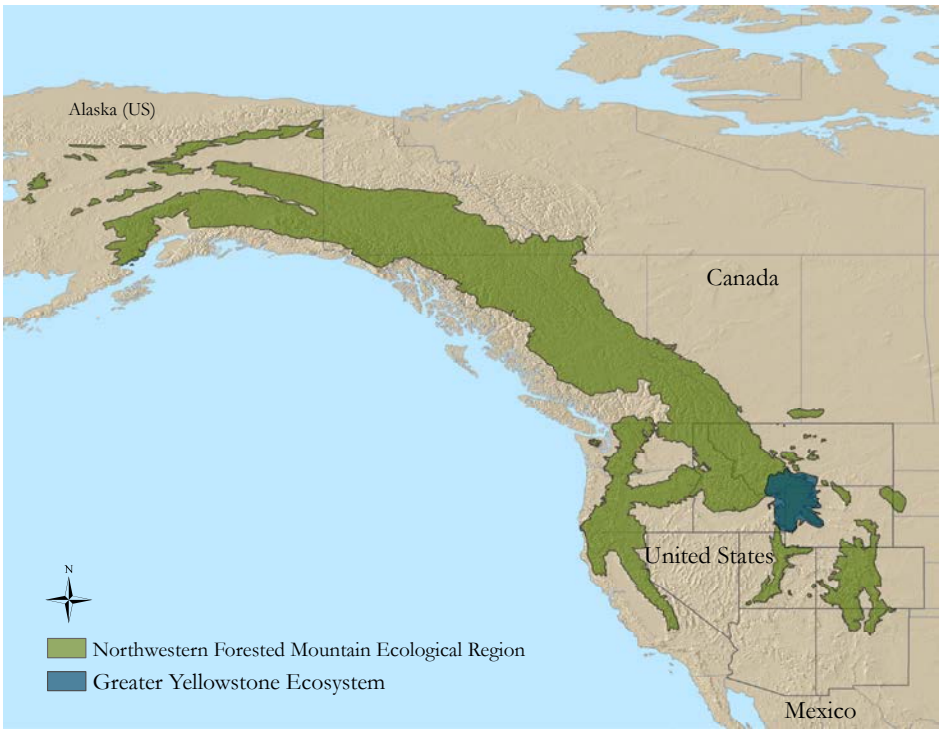
With the bison, the enemy of the rancher is Brucellosis. Brucella abortus is the strain of the bacteria that most often affects cattle; it causes high incidence of fetal abortions. In 1990, a study by Texas A&M researchers showed that

Figure 2: Great Northern Landscape Conservation Cooperative



Source: National Park Service, U.S. Fish and Wildlife Service, ESRI Data, SRTM.

Figure 3: Commission on Environmental Cooperation's Northwestern Forested Mountains Ecological Region



Source: Environmental Protection Agency, National Park Service, ESRI Data, SRTM.

bison could indeed transmit Brucellosis to cattle,[4] and ever since, the wary eyes of ranchers and their representatives have been focused on the issue. The National Wildlife Federation and others argue that no confirmed cases of Brucellosis transmission, outside of laboratory conditions, have ever occurred between bison and cattle. While it is difficult to identify the source of Brucellosis in actual cases, there is, in fact, increasing evidence of transmission to cattle from elk[5] -- a cornerstone of the region's lucrative hunting and outfitting industries. While a couple of cases of cattle carrying Brucellosis have occurred, Montana retains its classification as a "Brucellosis-free state,"[6] increasing the price and demand for its cattle output. Ranchers see expanding bison territory as an increased threat of Brucellosis contraction. With these threatened interests comes strong opposition from ranchers to any project involving the health and range of wolves or bison.

Ranchers, however, are not the only stakeholders fighting against environmental regulations and other outcomes that the GYC pursues. Extractive companies, off-highway vehicle users, and more have interests that conflict with the desired goals of the Coalition. The recent restrictions on snowmobile use in Yellowstone National Park, and regulation of extractive industries on adjacent public lands, both advocated in part by the GYC, have created controversy. The question becomes: how does one draw the line between conservation and public access, between "conserve[ing] the scenery and natural and historic objects and the wildlife therein"[7] and at the same time maintaining "a public park and pleasuring ground for the benefit and enjoyment of the people?"[8] How do the rights and desires of all Americans, from the hiker to representatives of the energy industry, to the snowmobiler, to the conservationist, receive proper consideration?

These examples of more typical opposition to conservation work are not the only challenge faced by the Coalition. With so many nonprofits in the ecosystem, a whole host of new dilemmas is created. These include competition among conservation groups for projects and funding. These pressures have created a unique political climate between nonprofits in the region, wherein communication and coordination between groups is almost nonexistent, sometimes resulting in wasted advocacy resources between coinciding or conflicting projects. In order to survive these intense pressures, the Coalition and every other group have been forced to fill a specific niche and separate themselves in the eyes of potential funders. The GYC has done so with a focus on large landscapes.

The Coalition was formed with one goal in mind: the protection and rehabilitation of the iconic grizzly bear. Established in 1983, the nearly global support for the cause of the endangered grizzly allowed the Coalition to flourish. It also did not hurt that they were one of the first nonprofits in the region, entering the field when there was only one conservation specialist working in the GYE.[9] The focus was initially on landscape scale issues because, as the GYC saw it, only total landscape health could help the far-ranging bears. Today, with the grizzly populations healthy once again, the mission of the Coalition has evolved towards its previous goal: total landscape health.

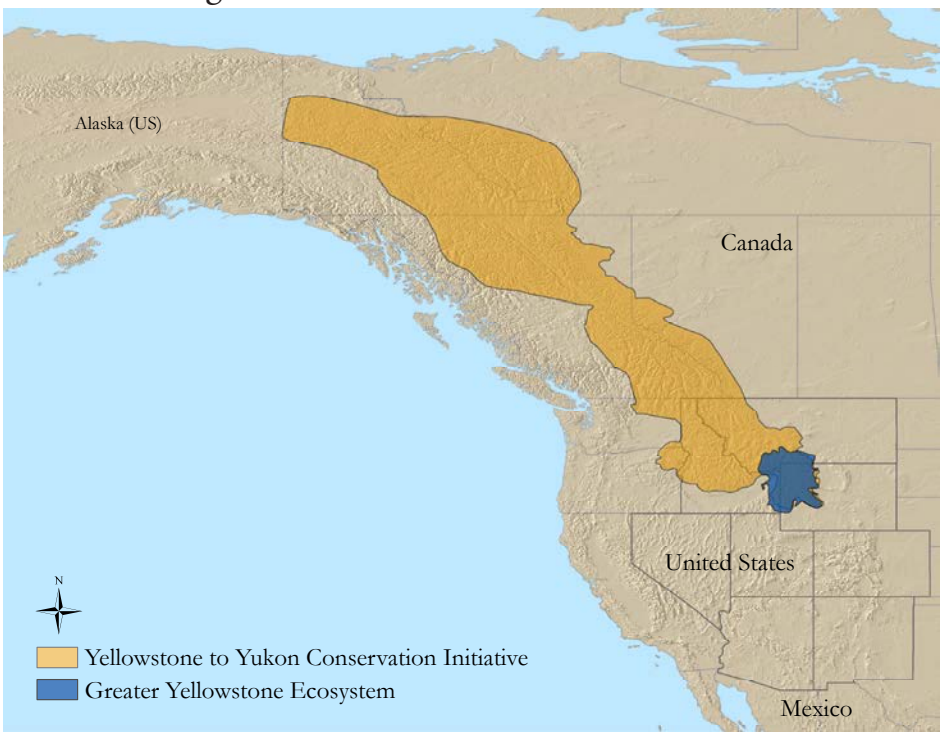
Using tools such as litigation, lease buyouts, community outreach and education, and project funding, the Coalition is fighting for an improved natural, and social environment that can encourage the total health of the GYE for years to come.

Governance

Leadership: The Coalition depends greatly upon the active involvement of its Board members, who consist of executives, conservationists, ranchers, small business owners, consultants, attorneys and more, all of whom are chosen by GYC members and must "have a strong commitment to protecting the vast 20-million-acre Greater Yellowstone Ecosystem."[10] In addition to the Board, there is a full-time staff composed of 19 professionals who keep the Coalition's wheels spinning.

Structure: For a small annual fee, anyone may become a member of the Coalition. With membership comes voting power. The members of the GYC vote to select persons for four-year terms to the Board. Limited to 24 Board members, the Board itself has the governing power of the organization. The Board has four sub-committees-- Conservation, Governance, Finance, and Development-- which facilitate discussion and make the decisions about their respective areas.

Figure 4: Yellowstone to Yukon Initiative



Source: National Park Service, Crown of the Continent Roundtable, ESRI Data, SRTM.

Type of Initiative: The Greater Yellowstone Coalition is a 501 (c)3 nonprofit organization. It is a formal institution.

Authority: Traditionally, the leverage of the GYC was dependent upon existing laws, such as the Endangered Species Act and the National Environmental Policy Act, as well as intra-agency management guidelines. The group acted as a watchdog in many cases, pursuing litigation when these federal laws or internal agency regulations were not being upheld. In recent years the Coalition has moved towards a more collaborative strategy where communications and relationships influence other stakeholders more than the threat of litigation.

Participants

Anyone may participate in the GYC by obtaining an annual membership of $50. GYC has about 6,000 full-fledged members. There are nearly 40,000 people worldwide who support the organization in some way. Members can be individuals, organizations, or even businesses. Some noteworthy organizational members include the Sierra Club, Trout Unlimited, the Audubon Naturalist Society, and countless small businesses located in the area.

Mission

Based on the premise that "an ecosystem will remain healthy and wild only if it is kept whole,"[11] the mission of the GYC is to do exactly that-- to advocate for keeping the Greater Yellowstone Ecosystem whole and protected.

Motivations for Initiating Effort

The GYC was formed in order to aid in the recovery of the dwindling and highly threatened grizzly bear (Ursus arctos horribilis) population in the region. The grizzly bear has a seasonal range of up to about 100,000 acres.[12] While these ranges depend upon habitat condition, and there is some overlap of ranges between bears, these animals clearly require large swaths of healthy land in order to survive. The GYC was originally formed to ensure the protection of enough lands for the grizzly to thrive.

Major Strategies

Research: The Coalition utilizes scientific research in order to more accurately address environmental issues in the GYE. The research utilized is either funded directly by the GYC, funded by state and federal agencies, or is extraneous but useful. In the words of Board member Kniffy Hamilton, the real research work comes in the form of "compiling and coordinating information, not directly collecting it."[13]

Planning: According to Communications Director Jeff Welsch, all projects of the Coalition are planned with two objectives in mind-- whole ecosystems and large landscapes. With each proposal, significant systemic effects on the health and integrity of ecosystems is intended, even if the end goal is to impact only one form of wildlife. Large landscapes are targeted because "the health of a large landscape is connected to the health of all [life] within it."[14]

Regulation: In the past, the Coalition has taken on a watchdog role for the ecosystem by making sure that existing laws and guidelines are being properly followed in respect to the GYE. While they still retain the capacity for this type of legal regulation, the group is moving away from litigation and only utilizes it in cases where it has a value or function "that cannot be achieved in any other way."[15] This move has been spurred on by the realization that you "need public support to create permanent solutions."[16] When public support is not behind an action, laws can be made, rulings overturned, and work undone. Therein lies the weakness of the traditional style of environmental protection through litigation: litigation itself is divisive and weakens public perceptions of such groups, and conservation as a whole.

Restoration: While it is an important task in the region, the Coalition generally leaves restoration to the 200 plus other environmental groups working in the GYE. One small example of a project that has been pursued in this respect is stream restoration in the Madison River watershed. Focus on stream restoration work as a whole has increased during the past year.

Communication: The GYC Board has three annual meetings, one in Bozeman and two at different locations around the ecosystem, and one conference call. The sub-committees hold meetings or conference calls at differing intervals that are determined on a sub-committee basis. Besides full meetings or conference calls, there is substantial communication across the Coalition, especially among the staff.

Besides the above mentioned strategies, the Greater Yellowstone Coalition also pursues these other tools in order to fulfill its mission:

Community Involvement and Education: With four regional offices, the GYC engages surrounding communities as much as possible in order to educate about the ecosystem and instill a conservation ethic. An example of this engagement is the Cycle Greater Yellowstone bike tour-- a week-long fundraising event with the goals of sharing this special region with people from all over the world and strengthening ties to local communities.

Land Exchanges: Pursued in the late 1980s and early 1990s, land exchanges facilitated by the GYC helped to transform the patchwork of ownership in ecologically vital areas to broader swaths of protected land. The majority of this work or at least the portions that are feasible have been accomplished, and the GYC has moved away from this strategy.

Litigation: Litigation has played a large role in the history of the GYC. However, current leadership is hoping to move away from such measures. In recent years litigation has become the final tool in the Coalition's arsenal, only to be used when no other strategy will work.

Lease Buyouts: Grazing rights are a ubiquitous presence on public lands in the American West. The Greater Yellowstone Ecosystem is no different in this respect, and the Coalition is seeking to modify this tradition. As bison herds are being restored in Yellowstone Park, and their presence is increasingly felt in surrounding areas, conflicts with cattle grazers are increasing. Due to Brucellosis and the intense pressure from livestock interests for isolation, bison and cattle are not allowed to mix. In order to aid in the spread of bison, the GYC is buying out grazing rights in order to remove cattle from the land and return it to a more natural state, bison and all.

Ecosystems Characteristics and Threats

The Ecosystem: Covering approximately 20 million acres of land in Montana, Idaho, and Wyoming, the GYE is a vast, fairly intact ecosystem. It is the "southernmost area in North America that still contains a full suite of native carnivores, along with other wilderness qualities."[17] The ecosystem is an important wildlife corridor, has healthy predator populations, and reasonably high biodiversity. Much of the reason for the protection of this vast swath of land is that it is currently mostly intact.

Threats:

Population Growth: Due to the intact wildness and iconic scenery of this area, the human population in the region is burgeoning, threatening the very values that draw them here.

Climate Change: The effects of climate change will impact biodiversity, community make-up, and suitable habitat and ranges for wildlife.

Energy Development: While this threat has been reduced through the continued action of conservation groups in the area, it remains a threat to the health of the ecosystem.

Distribution of Protected Land: At the core of the GYE are Yellowstone and Grand Teton National Parks. Together, these parks compose an area of approximately 2.9 million acres. Surrounding the parks is a complex of six national forests and five wildlife refuges that contain approximately four million additional acres of federally designated wilderness. This core, some of which is itself currently open to resource extraction, is surrounded by private, state, local, and tribal lands, all of which have the ability to enhance or threaten the conservation of the landscape that is the GYE.

Monitoring, Assessment, and Evaluation

Baseline Conditions: The Greater Yellowstone Ecosystem is perhaps one of the most well-studied habitats in North America. As our first national park and home to a great abundance of wildlife, this ecosystem has been under near constant study since the early 1900s. As such, basic understandings of processes, "normal" conditions, and needs of wildlife are readily available in academic literature.

Monitoring: Monitoring in the GYE for the Coalition is funded directly by GYC funds, or is performed by others with similar interests, such as federal agencies, and utilized by the GYC.

Evaluation: Compiling and coordinating the scientific work pertaining to existing and possible projects is a large component of GYC work. By compiling various scientific studies, more accurate evaluations of environmental conditions and necessary actions may be devised.

Accomplishments/Impacts

Some of the many accomplishments of the GYC are listed below, in chronological order:

- One year after its founding, the GYC helped secure more than one million acres of wilderness designation in western Wyoming in order to provide a stronger buffer for the parks and their migrating wildlife.
- In 1992, the Coalition led efforts that halted logging in prime grizzly habitat in Targhee National Forest.
- In 1996, GYC prevented the construction of a vast open-pit gold mine and tailings pond two miles outside Yellowstone Park's northeast corner.
- GYC and partners brokered an historic deal in 2008, allowing for bison to roam nine miles north of the park along the Yellowstone River to suitable public lands, avoiding senseless slaughter.
- In 2009, the GYC's lawsuit to restore Endangered Species Act protections for the grizzly bear prevailed and the group helped secure a Wild & Scenic designation for the headwaters of the Snake River in Wyoming.
- After extensive work by the GYC, 1.2 million acres of the Wyoming Range were designed off-limits to oil and gas development.

Factors Facilitating Progress

For the past thirty years, the Greater Yellowstone Coalition has effected lasting change in areas around the GYE. This longevity and success were won through hard work and intelligent planning, but other factors play a role in the success of the Coalition as well.

Grizzly Bear Perception: Unlike the grey wolf, the grizzly bear does not carry the cultural animosity of the traditional west. Instead, it is viewed by most parties as an iconic symbol of America's wild lands. For the GYC, this perception has meant less opposition to projects, especially those related to the grizzly, and more financial support.

Prior Success: A successful history of litigation by the GYC has created an opinion that they can affect positive change in the ecosystem. As the number of successful lawsuits and litigations grew, so did public awareness of the Coalition, and in turn, so did funding. Increasing funds have allowed the Coalition to pursue more and more successful projects, creating positive feedback from their initial successes.

Challenges

While the Coalition has had a large amount of success over the years, there have been many challenges along the way.

Competition for Funding: Even with the Coalition's successes, gaining sufficient funding can be a challenge. With so many different organizations in the GYE vying for funds, there is a constant struggle to keep awareness and support of a single organization at high levels. This is especially true when many other organizations in the area use fear-mongering to increase fundraising. Postcards with slogans, such as "stop the slaughter of wolves," paint an inaccurate picture of the situation, yet yield high returns for other organizations in the Greater Yellowstone area.

Organizational Culture: Due to the above mentioned competition for funds, several other challenges have arisen. The culture of nonprofits working in the Greater Yellowstone Ecosystem can be a stubborn, competitive, and non-cooperative one. The large number of organizations creates a stronger need to produce results in order to gain attention and steady funding. With this increased need for results, and high level of competition for projects and funds, nonprofits have taken on a combative, rather than cooperative strategy. This means that instead of working together and pooling resources to have greater effect, organizations sometimes are noncommunicative and often overlap projects, wasting resources and reducing results.

Lessons Learned

Power of Landscapes: In pursuing work for target species, especially those of higher trophic levels, total landscape health -- not just species health -- should be of prime consideration. By expanding the scope of consideration, more powerful and lasting results may be obtained, not just for target species, but for the ecosystem as a whole.

The (Proper) Place of Litigation: The recent shift of the GYC to diminished reliance on litigation, even in areas where it might have a greater impact, is a telling one. The realization has been that litigation is so divisive and impermanent that in many cases where it appears to be the best option, it no longer is. Groups need to ask: what value can be provided by litigation that can't be achieved through other avenues, and what are the trade-offs?

Project Selection: As any nonprofit knows, project selection is vital. A host of complicated social, cultural, economic, and political interactions come into play with many projects. In initially focusing on the grizzly bear, the Coalition had a target whose projects would not have the same types of opposition as those related to the wolf or bison, for example. By trying to understand the complex relationships others have with conservation activities, more fitting projects, marketing, and collaboration may be pursued.

Website Links

Much of the information from this report originated from the Greater Yellowstone Coalition website (http://www.greateryellowstone.org/) and the various reports, publications, and sections therein.

The federal government has its own focus upon the GYE, called the Greater Yellowstone Coordinating Committee (http://fedgycc.org/), which coordinates actions and shares information between the National Park Service, Fish and Wildlife Service, Forest Service, and the Bureau of Land Management in regards to the management of natural resources in this region.

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Morning Glory Pool in Yellowstone National Park.

Landscape Profile

Yellowstone River Watershed

By Sawyer Connelly

About the Author:
Sawyer Connelly (Colorado College class of '14) is a 2013-14 Student Researcher for the State of the Rockies Project.

David Spiegel

Landscape Profile

The Yellowstone River is the longest undammed river in the United States. The river is the lifeblood for a vast majority of the communities that lie within its watershed. The watershed is located in northern Wyoming and southern Montana. The entire Yellowstone River basin is just less than 70,000 square miles (181,299 square kilometers, 44,800,000 acres).[1] Just under half of that is located in Wyoming; although the vast majority of the Yellowstone River runs through Montana, most of its tributaries and their headwaters are found in northern Wyoming.[2] The eastern terminus of the watershed, where the Yellowstone meets the Missouri, edges slightly into North Dakota. The watershed can be seen in **Figure 1.**

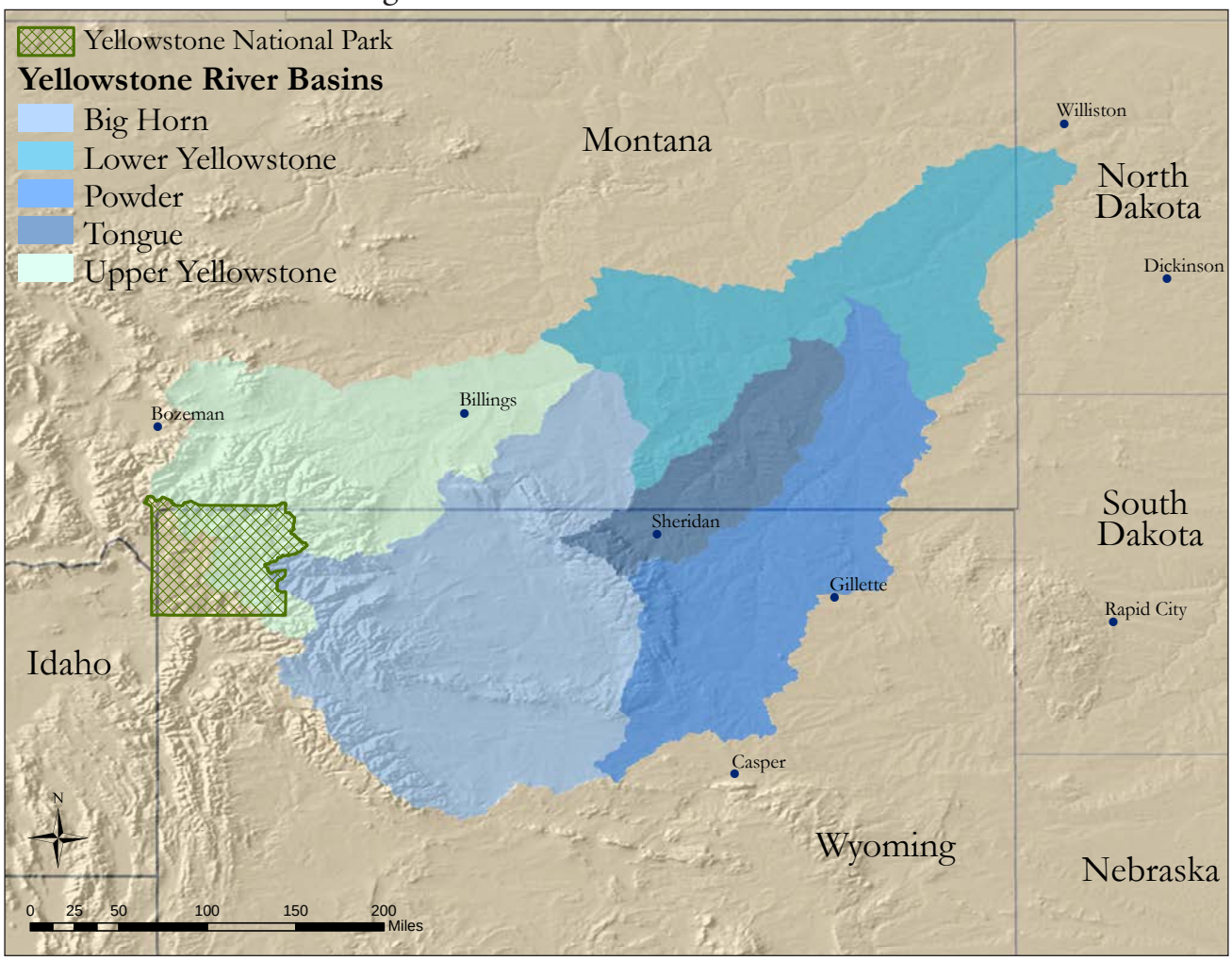
Yellowstone River as a National Blueway

Blueways: A Landscape-Scale Approach to Watershed Management

The intent of the National Blueways System, established by the Department of the Interior, is to bring water and land stewardship together, creating synergy and a framework for partnerships. The program's objective is to: "provide a new national emphasis on the unique value and significance of a 'headwaters to mouth' approach to river management and create a mechanism to encourage stakeholders to integrate their land and water stewardship efforts by adopting a watershed approach."[3] Additionally, the mission of the National Blueways System is to "recognize river systems conserved through diverse stakeholder partnerships that use a comprehensive watershed approach to resource stewardship."[4] Through this mission, the program recognizes and rewards the work of the involved stakeholder partnerships by providing federal support to increase collaboration among diverse partners.

The National Blueways System was established on May 24, 2012, by Secretary of the Interior Ken Salazar. It is designed to act as a blueprint for communities to plan and manage for health, resiliency, and collaboration among different stakeholders, who strive for an integrated approach to managing land and water resources.[5] Healthy rivers and watersheds provide outdoor recreation, clean water, flood and drought protection, and other valuable economic, social and ecological services. The National Blueways System seeks to sustain and enhance these services, providing long-term value for the American people. However, the prospect of the Yellowstone being designated as a Blueway met strong resistance from local interests, as communities shunned the concept of additional federal involvement in the area.

Figure 1: Yellowstone River Watershed



Source: National Atlas, ESRI Data, SRTM.

Federal Involvement in Landscape-Scale Watershed Conservation

In regards to the Yellowstone River as a Blueway, Rebecca Wodder, a spokeswoman for Secretary Salazar, spoke in November of 2012 to the Yellowstone River Conservation District Council to explain the newly created national program and discuss the possibility of the Yellowstone becoming a part of the National Blueways System. This interest from the federal government in the river was met with great concern as the Wyoming congressional delegation thought the Yellowstone River was in the process of being designated. Additionally, the move towards the designation was seen as a sort of federal land grab, even though there is no federal regulation involved with such distinction. Letters were exchanged between the Wyoming delegation and Secretary Salazar regarding the Yellowstone River and the National Blueways System.[6] The latter letter clarified that the Yellowstone River was not being designated and the idea was just being explored. Further, Salazar stated that unless there was support from all levels, the designation would not go forward.

Since then, the designation has made no further progress and on July 17, 2013, the new Secretary of the Interior, Sally Jewell, made the decision to put the National Blueway System on hold after a hearing before the House Resources committee. She stated there would be no new designations, "until we figure out the future of the program."[7]

Other Routes for Watershed Conservation

With this decision, the Yellowstone River, the longest undammed river in the country, faces the question of whether any programs or collaboration that promote stewardship will occur. American Rivers, a conservation group, would like to see Wild and Scenic River designation, which would also provide some protection, but as of now the only section of the Yellowstone River that has any protection outside of Yellowstone National Park is the Clark's Fork, currently designated as Wild and Scenic.[8] Additionally, this form of federal designation, while traditionally focusing on portions of a watershed, does not necessarily encourage a basin-wide management. Furthermore, with attitudes towards the federal government apparent from the National Blueways System, it is unlikely that this other form of federal protection would be welcomed.

However, another effort to offer protection for rivers and watersheds is American Rivers' Blue Trails program. While similar in name to the DOI's National Blueways System, the Blue Trails program exists outside of government. This program was launched in 2007 and works to inspire communities to look at waterways as resources and therefore encourages them to take action for protection and restoration. The five key ideas to the Blue Trails program are to: protect the environment, enhance local economies, promote healthy living, preserve history and community identity, and connect people and places.[9] This effort, absent of federal involvement, achieves great measures in encouraging watershed-scale management and promoting community collaboration. Emphasizing the recreation value of rivers, and building an empowered constituency for rivers will also help the overall health of a watershed. However, the Yellowstone River is not part of American Rivers' Blue Trails program, although many components to successful rivers in the program seem present in the watershed. Stressing the recreational value of the Yellowstone and its tributaries, and the associated economic benefits to clean and healthy water may prove to be a more compatible approach for watershed-scale management than previous attempts at federal involvement.

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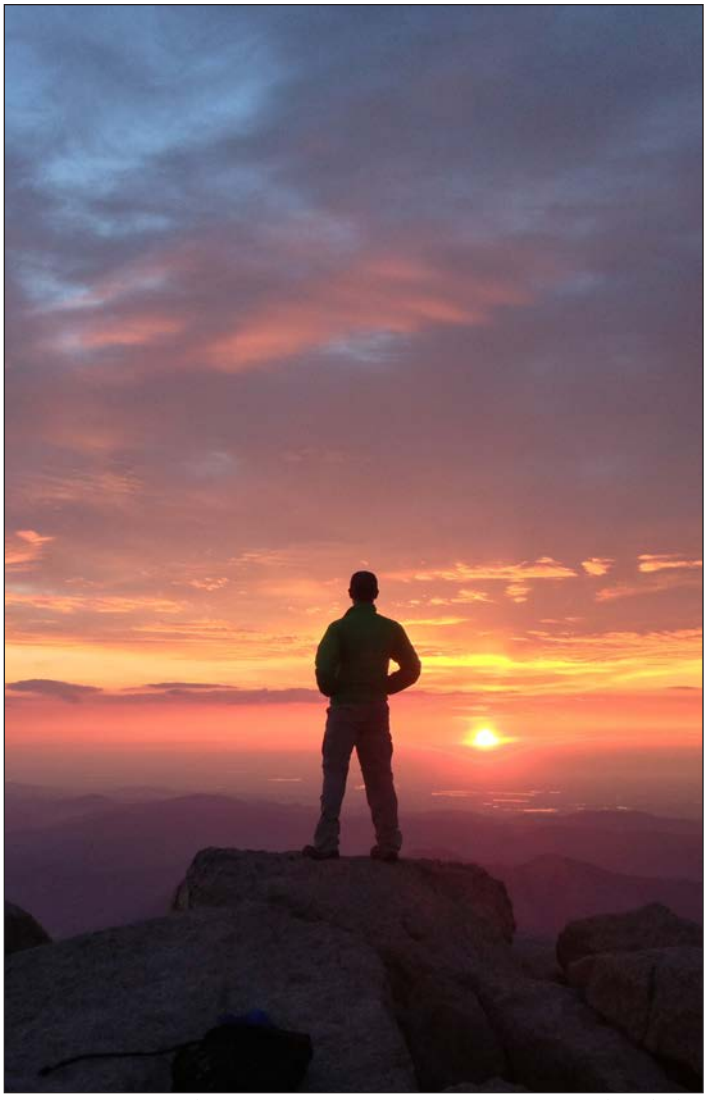


Sunrise at Longs Peak. David Mulcahy

Castle Geyser, Yellowstone National Park. David Spiegel

Large Landscape Conservation Case Study

Rocky Mountain Greenway

By Sawyer Connelly

About the Author:
Sawyer Connelly (Colorado College class of '14) is a 2013-14 Student Researcher for the State of the Rockies Project.

Breton Schwarzenbach

Location

The Rocky Mountain Greenway will connect the three national wildlife refuges (NWR), as well as parks and open spaces in the Denver metropolitan area through a series of trails, open spaces and riparian areas. Eventually the plan is to connect the metropolitan area to Rocky Mountain National Park. Maps from the U.S. Fish and Wildlife Service in **Figures 1 and 2** show the conceptual plans for connecting Rocky Mountain Arsenal National Wildlife Refuge to Rocky Flats National Wildlife Refuge, and Rocky Flats to Rocky Mountain National Park.

Date of Origin: May 2011.

Size of Initiative

There are 40,000 acres of parks and open spaces in the Denver metro area along with 140 miles of trails. Additionally the Greenway includes three national wildlife refuges and one national park: Rocky Mountain Arsenal Wildlife Refuge (15,000 acres), Two Ponds National Wildlife Refuge (72.2 acres), Rocky Flats National Wildlife Refuge (3952.64 acres), and Rocky Mountain National Park (265,761 acres).[1, 2]

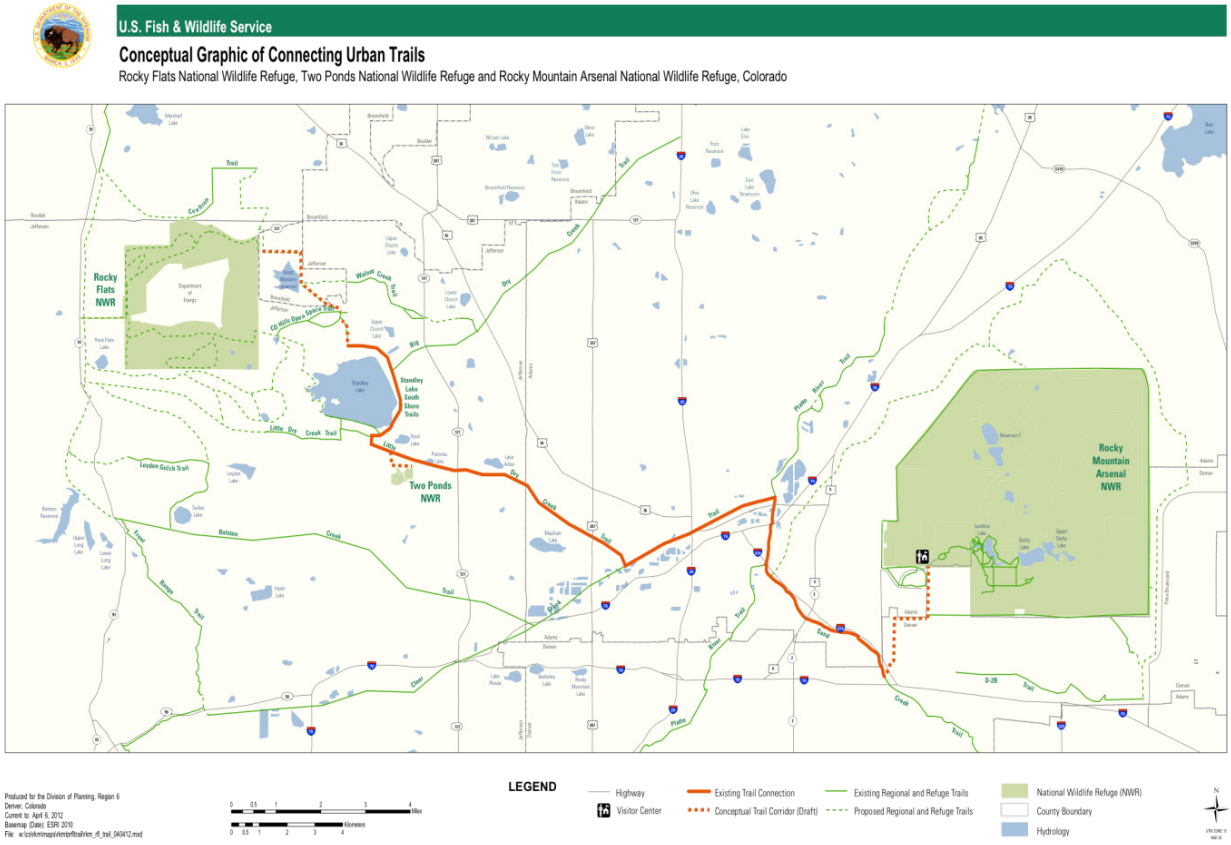
Summary

The Rocky Mountain Greenway is a partnership through federal, state, local and other stakeholder entities to create uninterrupted trails/transportation linkages connecting Colorado's Front Range metropolitan trail system, the three National Wildlife Refuges in the metro region, Rocky Mountain National Park, and the community trail systems in between. The project seeks to "create new ways that urban populations experience and enjoy Colorado's great outdoors."[3]

The Greenway was a vision under President Obama's "America's Great Outdoors," and in May, 2011, an agreement was signed into effect by former Secretary of the Interior Ken Salazar and Colorado Governor John Hickenlooper. The project aims to connect the three national wildlife refuges in the Denver metropolitan area: Rocky Mountain Arsenal National Wildlife Refuge, Two Ponds National Wildlife Refuge, and Rocky Flats National Wildlife Refuge through a network of trails, as well as other parks and open spaces in the metropolitan area. Eventually the network will be connected, through a trail system, to Rocky Mountain National Park.

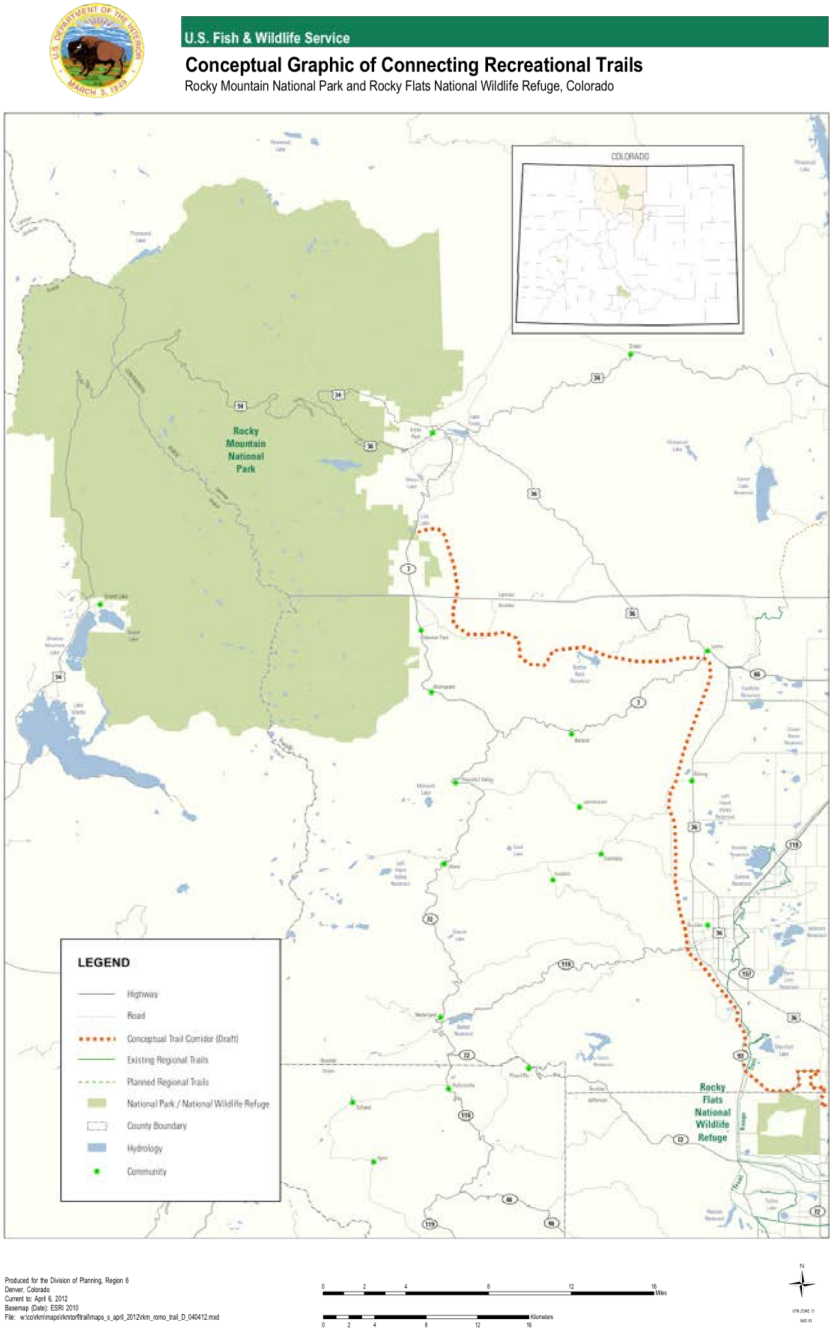
Upon the establishment of the Rocky Mountain Greenway, a ten-person steering committee was put in place to guide the vision of the Greenway as it developed.[4] Even before this, however, there was much being done to create the Greenway. The Northeast Greenway Corridor is an advisory committee that oversees a foundation and recovery fund that is using money from natural resource damages at the Rocky Mountain Arsenal, among other sources, for ecosystem restoration and trail linkages in communities surrounding the Rocky Mountain Arsenal.[5] The Sand Creek Greenway is an organization involved with creating a network of trail systems in the northeast section of Denver in the communities of Aurora, Commerce City and Denver ending at the Rocky Mountain Arsenal.[6] The South Platte Greenway advances the environmental and recreational assets in and along the South

Figure 1: Conceptual Graphic of Connecting Trails from Rocky Mountain Arsenal NWR to Rocky Flats NWR



Source: U.S. Fish and Wildlife Service.

Figure 2: Conceptual Graphic of Connecting Trails from Rocky Flats NWR to Rocky Mountain National Park



Source: U.S. Fish and Wildlife Service.

Platte River and the surrounding tributaries in the Denver metropolitan area as "a unique environmental, recreational, cultural, scientific and historical amenity that uniquely links our City's past and its future."[7]

Together these organizations make up pieces of what eventually, as a whole, will be considered the Rocky Mountain Greenway. The eastern section of the Greenway has proved to be the most successful thus far and is the most complete section of the Greenway. The western section, from Rocky Flats to Rocky Mountain National Park, proves to be the greatest challenge and has a long way to go. The Rocky Flats, a former nuclear site, raises much public concern due to the radioactivity of the site, coupled with the Fish and Wildlife Service's lack of funds to develop the national wildlife refuge. From Rocky Flats to Rocky Mountain National Park, there is much work to be done in order to connect the two via trail. This is no small feat fiscally, and finding an agreeable solution to all parties involved remains a challenge as there are many private landowners whose land the trail would cross.[8] There's hope for a solution, but it will take much work to create a fully connected system from Rocky Mountain Arsenal through Denver all the way up to Rocky Mountain National Park.

Governance

Leadership: The Greenway's leadership is rooted in a ten-person steering committee. Rocky Mountain Greenway Steering Committee:

- Stephen Guertin, Regional Director, U.S. Fish and Wildlife Service, Mountain-Prairie Region (Co-Chair)
- Ginny Brannon, Assistant Director for Water and Energy, Colorado Department of Natural Resources (Co-Chair)
- Deb Gardner, County Commissioner, Boulder County
- Faye Griffin, County Commissioner, Jefferson County
- Gordon Robertson, Director of Parks Planning, Design and Construction, City and County of Denver
- Pat Schuler, Manager, Open Space and Natural Resources Division, City of Aurora Parks and Open Space Department
- Ruben Valdez, Ruben Valdez and Associates
- Howard Kenison, Partner, Lindquist and Vennum
- Carolyn Boller, President, Friends of the Front Range Wildlife Refuges
- Tim Wohlgenant, Colorado and Southwest Director, The Trust for Public Land.[9]

Structure: One representative for the Governor of Colorado will serve as co-chair along with the Secretary's representative. The Governor's role includes:

- Assigning an existing senior employee from the Governor's Office or agency to represent the state on the steering committee.
- Assigning other state employees as needed to serve on any working groups established.
- Providing information, reports, research, planning documents, and other employee time and expertise as appropriate to support detailed and substantive discussions.

- Reviewing program and organizational proposals, as well as other Steering Committee and working group products and provide staff, equipment and other state resources to carry out programs and actions.

One representative for the Secretary of the Interior will serve as co-chair along with the Governor's representative to:

- Assign an existing senior DOI employee to represent DOI on the steering committee.
- Assign other existing DOI employees to serve as needed on working groups.
- Provide information, reports, research, planning documents and other DOI employee time and expertise as needed.
- Review program and organizational proposals and other Steering Committee and working group products, as well as provide staff, equipment and other DOI resources where necessary to carry out programs and actions.

Also, the steering committee includes four representatives of the Denver/Front Range metropolitan area local governments (two county government and two city government representatives) and four representatives of local government-private sector area partnerships and non-governmental organizations engaged in the development of parks, open spaces, wildlife areas, river corridors, and trail systems.[10]

Type of Initiative: The Rocky Mountain Greenway is a partnership between federal, state and local governments, as well as all other public and private players and seeks to build on the great work of surrounding greenways:

Sand Creek Greenway

-The Sand Creek Regional Greenway Partnership

- The Sand Creek Regional Greenway Partnership is a nonprofit, 501 (c)3 organization that, in partnership with Aurora, Commerce City and Denver, seeks to preserve, improve, and promote the natural and recreational resources of the Sand Creek Regional Greenway.
- The Sand Creek Regional Greenway Partnership is governed by a volunteer Board of Directors that is comprised of individuals from the three partner cities, with a broad range of experience and interest.
- The Sand Creek Regional Greenway Partnership has four main objectives:

  1. To promote education about, and community involvement with, the Sand Creek Regional Greenway through providing environmental education, recreational opportunities, and volunteer programs to neighbors and youth in Aurora, Commerce City, and Denver, targeting low income populations.
  2. To promote public awareness to increase utilization of the scenic, natural, historic, cultural and recreational resources within the Sand Creek Regional Greenway.
  3. To enhance and improve the Greenway through public and private participation in Sand Creek Regional Greenway projects and events through donations, volunteering and greenway construction projects.
  4. To preserve and improve resources by raising funds by utilizing individual, foundation, governmental and corporate sponsorships and donations to support Sand Creek Regional Greenway programs and projects.[11]

South Platte Greenway

-The Greenway Foundation

- The Mission of the Greenway Foundation is to advance the South Platte River and the surrounding tributaries as a unique environmental, recreational, cultural, scientific and historical amenity that uniquely links the city's past and its future.
- This mission will be accomplished by creating ongoing environmental and riparian enhancements; holding property, when needed, in conservation easements; utilizing the river as an outdoor and historical learning resource, hosting free cultural events promoting the relationship between the river and music, art and theatre, providing youth employment opportunities, and by promoting good stewardship through hands-on educational programs.[12]

Northeast Greenway Corridor

-Foundation tied to the Rocky Mountain Arsenal

- The Rocky Mountain Arsenal has undergone a stunning transformation into the nation's premier urban wildlife refuge. Now a remarkable funding opportunity is being launched. Following a natural resource damage settlement with the U.S. Army and Shell Oil, Colorado's Natural Resource Trustees have $27.4 million to allocate over the next six years. Through additional matching funds, investments in the Northeast Greenway Corridor could eventually exceed $50 million. A Natural Resource Damages (NRD) Consent Decree established the Northeast Greenway Corridor (NGC) Advisory Committee consisting of Adams County, Aurora, Brighton, Commerce City, Denver, Thornton and the Sand Creek Regional Greenway Partnership. The Consent Decrees established a Foundation Fund to be used to fund projects selected by the NGC Advisory Committee, and a Recovery Fund to be used to fund projects proposed by any Interested Party that meets project criteria.[13]

Authority: The Rocky Mountain Greenway was an initiative set forth by a general agreement via the Department of the Interior and the State of Colorado.

Participants

Key Partners: Formal and informal partners include the U.S. Fish and Wildlife Service, the Sand Creek Greenway, the Northeast Greenway Corridor, the South Platte Greenway and the counties and cities which the Greenway runs through.

Mission and Primary Objectives

Mission: The main goal of the project is to encourage children and adults to explore/use the outdoors by providing educational opportunities and recreational access for urban communities in the outdoors.[14]

Motivations for Initiating Effort: The Rocky Mountain Greenway is being established in order to conserve parks, open spaces and the remaining prime wildlife habitat in the

Denver metropolitan area, as well as providing a vast network of trails systems connecting these parks and open spaces to encourage youth and adults to get out and enjoy the outdoors, while also providing educational resources regarding the surrounding environment.[15]

Major Strategies

Research: The research behind the Greenway was based on local user input and existing government oversight.

Planning: The Greenway Steering Committee is charged with coordinating between all parties involved in terms of implementation. These plans range from the development of trail systems throughout the Denver metropolitan area to restoration and development of parks and open spaces.

Regulation: The project is regulated by the local, state and federal governments where applicable and private groups.

Restoration: The restoration aspect of the Greenway program ranges from economic development of areas to stormwater and floodplain management, to creating new parks and trails and the construction of bridges, to putting in place conservation efforts and developing educational programs.[16]

Communication: As of now there is no newsletter or website for the Rocky Mountain Greenway. The sub organizations, such as the Sand Creek Greenway and South Platte Greenway, have websites and do outreach in the communities where they are involved.

Ecosystem Characteristics and Threats

The Ecosystem: The ecosystem in this project is the corridor of the South Platte River running through the Denver metropolitan area, as well as the three national wildlife refuges in the metropolitan area and Rocky Mountain National Park. The riparian environment adjacent to the river is an important resource for plants and animals, and the wildlife refuges are a particularly important habitat for wildlife in the otherwise developed Denver metropolitan area.

Threats: The conservation projects that have been implemented thus far have made substantial headway, as can be witnessed in the eastern portion of the Greenway. The credit for the majority of these conservation projects goes to the Northeast Greenway Corridor. The Rocky Mountain Greenway stands on the shoulders of the Northeast Greenway Corridor, acting as an informal partner--as they are not officially partnered--and works to increase connectivity between all informal and formal partners. The Arsenal and the adjacent network of connecting trails in the northeast section of the Greenway have been completed. Initially, there were some issues at the Rocky Mountain Arsenal and Rocky Flats regarding the cleaning up of pollution related to the land's prior use. Rocky Mountain Arsenal was a success in terms of clean up, but it was a long process and is a former superfund site. There still is pollution in certain areas of the arsenal, but those have been capped. With Rocky Flats there are greater challenges ahead because it was a former nuclear site and radioactive pollution exists in the section still controlled by the Department of Energy. Because of this, there is public resistance to turning Rocky Flats into a wildlife refuge. There is some public support towards restoration of the sight too; however, a strong perception exists that the entire area is contaminated. A majority of the refuge has already been turned over to the U.S. Fish and Wildlife Service with a section still under Department of Energy control. Although a large portion of the refuge is under USFWS control, they have no funds to develop the site. The biggest challenges to come at the Rocky Flats are fiscal resources and dealing with the public concern.

Currently Disconnected Pieces of Natural Systems: The idea of disconnected natural systems comes into play in this initiative with Rocky Mountain Arsenal National Wildlife Refuge, Two Ponds National Wildlife Refuge, Rocky Flats National Wildlife Refuge, and Rocky Mountain National Park. Three of these, with the exception of Two Ponds, are large expanses of land that provide prime wildlife habitat. Trail systems are connecting these four habitats, but they are not serving as wildlife corridors so the natural systems remain disconnected.

Monitoring, Assessment, and Evaluation

Baseline Conditions: This is hard to determine because there is currently no transportation options other than personal automobile.

Monitoring: From a recreational perspective, monitoring for the Rocky Mountain Greenway will be assessed by observing the number of people who get out and use the Greenway. Elements of the initiative associated with ecological conditions of the Greenway's various parts will be monitored based on habitat improvement and the remediation of pollution associated with previous uses on the land.

Evaluation: The evaluation of whether the Rocky Mountain Greenway is successful or not is dependent on whether people get out and use the parks, open spaces and trail systems. The more people who take advantage of the Greenway and engage in outdoor activities, as well as the educational programs that go along with it, the more successful the program will be.

Accomplishments/Impacts

The project is still growing, but impacts can be seen on the Sand Creek Greenway with people getting out and using the trail system, as well as the implementation of a conservation strategy on the Rocky Mountain Arsenal and the remediation of pollution on the land from its prior uses.

Factors Facilitating Progress

There are community and governmental resources through both support and funding.

Challenges

The two greatest challenges to the Greenway lie on the western side of the project. Rocky Flats, the former nuclear site, poses a great challenge as there is much public concern about turning it into a National Wildlife Refuge, in addition to a history of radioactive pollution. The second big challenge is connecting the Greenway in the Denver metropolitan area to Rocky Mountain National Park. There are plenty of ideas on how to go about building a trail, but the funding for the trail, and obtaining permission from all the landowners that would

be involved, both present a daunting task that has yet to be undertaken in many cases. However, there is some progress being made as the Rocky Mountain Greenway has received money from the Department of Transportation and ground has been broken in some areas.

Lessons Learned

Communities will use areas more as they become easier to access. This public transportation system will provide city dwellers the chance to get outside of the downtown metropolitan area and experience their surroundings. As mentioned by city officials, when you undertake such civil projects, excitement grows among the population as more users access the new system, and thus the Greenway's success will likely grow on its own as more people are able to access the network of trails and parks. Because of this, it is difficult to assess the success of the project prior to its full completion.

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Rockies Project Photo Contest Second Place Winner: Mountain Goat on Mount Quandary, Colorado by John Nestler.

Spine of the Continent Expedition

The Thompson Divide

By David Spiegel

About the Author:

David Spiegel (Colorado College class of '12) is the Education and Outreach Coordinator for the State of the Rockies Project.

David Spiegel

We began our expedition work for the summer of 2013 in western Colorado, where oil and gas development has literally left its mark on the landscape. Driving through the I-70 corridor, the entire landscape is a spider's web of roads accented by well pads, fracking towers, storage facilities, and evaporation ponds. On the border of this developed landscape, however, lies the Thompson Divide. It is an anomaly among the federal public lands in western Colorado because, although it is leased for drilling, the area has not yet felt the full impact of development by the natural gas industry.

As we walked through the forests and rolling hills of the Thompson Divide, it is easy to see why local communities are fighting so hard to preserve the area in its natural state. Standing on top of the prominent Lake Ridge, we soaked in the awe-inspiring views of untouched forests and craggy peaks that stretched as far as the eye could see. Upon consulting our map, however, we soon realized that nearly all of the wildlands before our eyes are currently leased for drilling. I try to imagine this area as a network of roads and drilling sites with noisy trucks rumbling along dusty, dirt tracks, but it is difficult to fathom. That night, we slept under the stars in an idyllic aspen grove on the shores of the Lake Ridge Lakes.

We awoke the next day for another long trek further into the Thompson Divide. The industry has made claims that using existing "roads" would reduce the need for minimal additional road construction. Spending another two days, trekking on muddy four-wheel tracks, cow paths, and trails that were barely recognizable, had us skeptical about semi-trucks using this "existing infrastructure."

After several days tramping in the hills and sleeping under the stars, we returned to Carbondale to learn the other half of this landscape's story: the story of the community. As with many conservation battles, the natural beauty that we witnessed during our backpacking expedition through the area is not the only reason that this is such a hot-button issue for local communities. Beyond its obvious aesthetic qualities, residents of Carbondale, Aspen, Glenwood Springs, and Redstone rely on the Thompson Divide's natural qualities as an economic engine. Farmers and ranchers rely on clean water, hunting guides thrive on bountiful big game species, and local businesses depend on tourism related to outdoor enthusiasts. In many ways, the communities here are inextricably linked to the landscape upon which they live and thrive. Regardless of political affiliations, almost everyone in these small mountain towns can agree on protecting the Thompson Divide for clean water, clean air, and a healthy community.

A few days after our backpacking trip, we found ourselves sitting on Bill Fale's back porch. Bill and his wife operate a ranch that has been in the family for five generations. Sitting on a porch overlooking breathtaking views of 13,000 foot Mount Sopris, Bill told us, "There are some areas that have other attributes, other values, that are more valuable than getting the oil and gas everywhere. I don't graze my cows everywhere, and I think it is absolutely ridiculous to say that we should drill absolutely everywhere."

Large Landscape Conservation Case Study

Thompson Divide Coalition

By Samuel Williams

About the Author:
Samuel Williams (Colorado College class of '14) is a 2013-14 Student Researcher for the State of the Rockies Project.

David Spiegel

Figure 1: The Thompson Divide Area

Source: Thompson Divide Coalition, ESRI Data, SRTM.

Location

The Thompson Divide Coalition (TDC, the Coalition) works out of Carbondale, Colorado. Located in Garfield, Mesa, Pitkin, Gunnison, and Delta Counties in eastern Colorado, the Thompson Divide Area (TDA) is situated to the west of the Crystal River, south of Carbondale, and north of Paonia Reservoir. It includes the Thompson Creek and Four Mile Creek watersheds, as well as portions of the Muddy Basin, Coal Basin, and the headwaters of East Divide Creek. The boundary of the Thompson Divide is depicted in **Figure 1**.

Within the TDA are portions of two national forests: the White River National Forest and the Grand Mesa, Uncompahgre, and Gunnison National Forest. It is adjacent to two federally designated wilderness areas to the east: the Raggeds Wilderness and the Maroon Bells-Snowmass Wilderness. This network of federal lands can be seen in **Figure 2**.

The TDA is nested within the Department of Interior's Southern Rockies Landscape Conservation Cooperative (SRLCC). Created by Secretarial Order No. 3289[1] of the Department of the Interior (DOI), the SRLCC, one of 22 total LCCs in the U.S., is a standardized region where federal agencies within the DOI, such as the National Park Service, Bureau of Land Management (BLM), and Fish and Wildlife Service, agree to emphasize cooperation among various groups. These regions are determined by both environmental and political factors. However, due to the high prevalence of Forest Service (an arm of the Department of Agriculture) lands in the TDA, it is the USDA, and not the DOI, that is the major federal land manager in the Divide. The cooperative nature of the SRLCC among federal agencies is thus not as important here as in other areas.

Date of Origin

The Thompson Divide Coalition (TDC, the Coalition) was created in 2008. It was formed in response to increasing oil and gas development and the recent discovery of mineral rights leases granted to private companies on federal land located in the Thompson Divide Area. In the early days of the organization, the TDC "came to be around the kitchen tables of ranchers"[2] and other stakeholders in the area, who acted as the Board for two years before making full-time hires.

Size of Initiative

The Thompson Divide is an area containing 220,000 acres and the headwaters of 15 watersheds.

Summary

The Thompson Divide Area wasn't always known as such. Previously, different portions of the Divide were referred to by their own names, such as "the Muddy Country" and "Buzzard Divide." A wild lands area with just a handful of oil wells, the unmatched ecological and recreational values here drew many residents into its varied, beautiful lands and

Figure 2: Federal Lands in the Thompson Divide Area

Source: Thompson Divide Coalition, National Atlas, ESRI Data, SRTM.

provided a natural abundance for ranchers, farmers, hunters, and fishermen. While this is still true today, the possibility of major change has arrived in the valley.

In the early 2000s, approximately 70 mineral leases were sold by the BLM in this area. These leases had 10-year terms, meaning they were set to expire around 2013. With limited existing oil and gas development, it became increasingly apparent to local groups that this new wave of development posed serious implications to the existing nature of the landscape. By the time this knowledge became widespread around 2007, the proposed locations of these wells, the infrastructure development they would entail, and the possibility of environmental degradation to the surrounding area, proved unacceptable to the local communities. It was during this time that local ranchers formed the Thompson Divide Coalition to oppose the development of the leases.

Consisting primarily of ranchers, the TDC was not originally comprised of traditional environmentalists. Rather, the lives and livelihoods of these individuals were intertwined with the surrounding natural resources. The early apolitical leanings of the group, and its later diversity of participants, led to a middle ground understanding of the Coalition's situation in the larger political picture. Summed up by Jason Sewell, a fifth-generation rancher from the Divide, the credo of the Coalition is that, "It's not that oil and gas drilling shouldn't happen anywhere. It's that oil and gas development shouldn't happen everywhere. Certain places are inappropriate for development, and the Thompson Divide is one of those places."[3] With the density and productivity of other nearby wells in the region, the sacrifices that would have to be made to extract the reserves in the TDA are simply not worth it in the eyes of the Coalition. To allow for drilling in the Divide is "not a game-changer for the industry, but is a total game-changer for our local way of life,"[4] according to Zane Kessler, Executive Director of the Thompson Divide Coalition.

The TDC was created in order "to secure permanent protection from oil and gas development on federal lands in the Thompson Divide area."[5] It was also during these early years of the Coalition's formation that the term "Thompson Divide" became the widely recognized title for this landscape. By 2009, the Coalition had thousands of members and supporters from local communities.

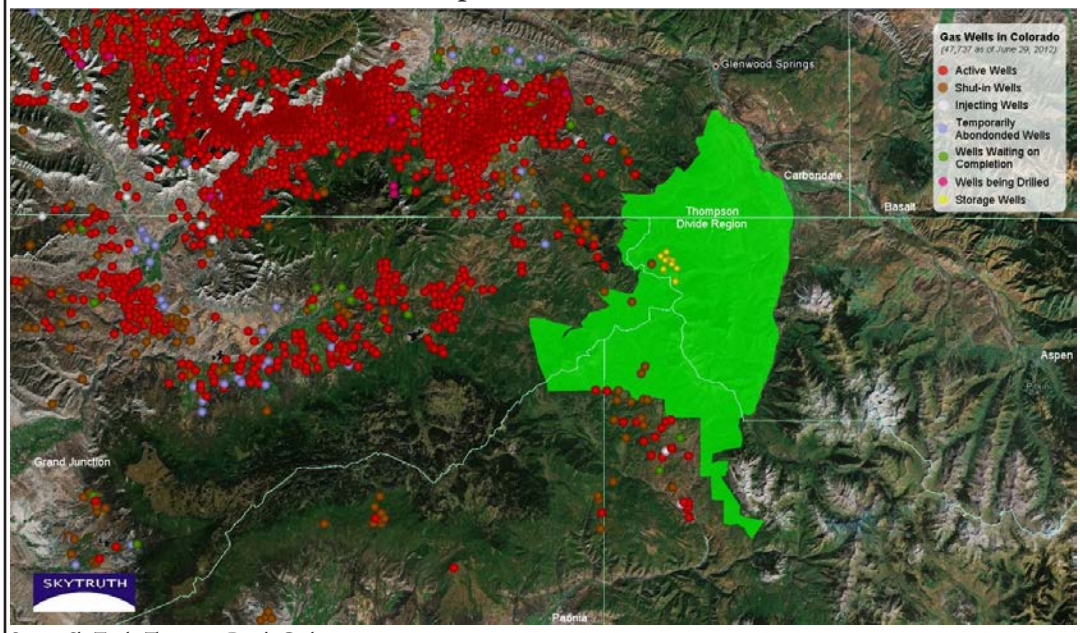
Figure 3 displays the existing oil and gas activity around the Thompson Divide Area. Many critics hoped that the leases in the area would be allowed to expire after ten years without development. This belief was bolstered by the fact that there was a national glut of natural gas, depressed prices, and a national recession. However, two separate corporations, Antero and SG Interests, began to initiate plans to develop wells in the Divide. Antero later sold its leases to Ursa Resources. With renewed economic interest in developing these wells, SG Interests and Ursa Resources sought to renew their leases with the Bureau of Land Management before they expired in 2013. Generally, the renewal process is quick and painless for energy companies.

By 2012, the Coalition had gained substantial support and they attempted to outright purchase the leases held by energy corporations in the Divide. The offer was intended to "make leaseholders whole,"[6] and thus would exchange lease rights for the amount of money that corporations had spent purchasing and retaining these leases.

This offer was ignored in some cases and refused in others. While these actions infuriated many on the environmental side of the issue, it is an understandable business decision. At that point in time, these leases were not under threat; it was quite likely that they would be renewed by the BLM. While leases would have been sold at a zero net-loss for the companies, they were still being asked to give away the possibility of profits from extraction. As the companies have a responsibility to their shareholders to make a profit, such a response, or lack thereof, is an understandable business decision.

In April of 2013, after years of pressure from the Thompson Divide Coalition, Wilderness Workshop and other organizations, the BLM approved "stipulated suspensions" for 25 of Ursa and SG's oil and gas leases in the Divide. "Suspension," in BLM terms, means the continued validity of a lease—basically it is a renewal of terms. All leases were suspended until April 1, 2014.[7] However, as was required by the stipulations, each lease must undergo a "curative" National Environmental Protection Act (NEPA) Environmental Impact

Figure 3: Existing Gas Wells in Western Colorado and the Thompson Divide Area.



Source: SkyTruth, Thompson Divide Coalition.

Statement (EIS), meaning that in many cases, these analyses were never done. The "leasing deficiency" of the NEPA process may take several years to complete.

This lease suspension was a mixed bag for conservationists. On the one hand it was possible that after years of work, oil and gas companies would still be able to drill in the Divide. On the other, these curative procedures also gave hope to shutting down some or all of the leases completely, if the environmental impacts are found to be too great.

A debate surrounding the current state of the landscape, previous developments, and economic possibilities for oil and gas extraction in the area continues between the Coalition and its supporters versus the leaseholders with a stake in tapping the area's reserves. As of 2014, minimal drilling has taken place in the Thompson Divide Area; however, some previous development had occurred. In total, 34 wells have been drilled within the TDA since 1947. Most of these wells reside on federal lands and, although most are now shutdown, the Divide is still home to one producing well, a transecting pipeline, and a small storage facility.[8] Considering the potential production demonstrated by these past wells, the lease holders have grounds to believe that new development could be profitable– especially with the use of newer technologies. Environmentalists and local communities, on the other hand, see past development as an exercise in failed exploration. Compounding this belief, a peer reviewed report from MHA Petroleum Consultants, sponsored by TDC, found that

> "With the enormous infrastructure capital costs required, in conjunction with low potential reserve numbers, little value can be assigned to these leases. Expenses aside, the logistics involving the "roadless area," wetlands, wildlife, recreation, public opposition, and multiple other obstacles, makes this area extremely unattractive to drill and operate wells."[9]

This report confirms the stance of the TDC that the infrastructural difficulties of development in the TDA would most likely not only prohibit a profitable venture for oil and gas companies, but also would be destructive to the natural values that support wildlife populations, outdoor recreation, and a sustainable rural economy.

However, the leaseholders in the TDA, particularly representatives of Ursa Operating Co. LLC, have questioned the findings of the MHA Petroleum Consultants report.[10] Wording of the report, as well as the close connection between the TDC and MHA Petroleum Consultants LLC, has these representatives claiming the report's results are flawed, and they continue to reassert the economic viability of the reserves beneath the Divide.

Since the stipulated suspensions were issued in April 2013, businesses now have a greater impetus to engage the Coalition in negotiations. While the outcome of this NEPA process is unknown, it is possible that some, or many, leases could be invalidated altogether. If that is the case, these corporations are guaranteed to lose money; the TDC's offer of monetary compensation in exchange for retiring leases is

Cattle graze in the Thompson Divide. David Spiegel

assured. Thus, even if the companies do not make a profit, they can ensure that they do not lose their original investment on the leases. During late 2013 and the first few months of 2014, different corporations have become more open to communicating with the Coalition. This is also due, in part, to the civil and business-like attitude displayed by the group. Negotiations between energy corporations and the Coalition have been ongoing since about May, 2013.

The Coalition's market-based efforts to buy back leases are the first of their kind in the state of Colorado. Previous cases in Montana and Wyoming, in the Rocky Mountain Front and Hoback Basin, respectively, utilized a similar process of buying out public mineral leases from private corporations. While these initiatives did pave the way for the work of the TDC, different conditions in Colorado create a unique situation.

An important similarity between these three efforts is the need to ensure that once existing leases are retired there will be some measure to provide permanent protection. In the Thompson Divide, this mechanism comes in the form of legislation. Drafted by Colorado Senator Michael Bennet and co-sponsored by Senator Mark Udall, the proposed Thompson Divide Withdrawal and Protection Act serves this purpose. The bill formalizes and streamlines a process for buy-out of existing leases from willing sellers. Additionally, it would prohibit the sale of any future leases within the Divide. This legislation in no way threatens existing leases; it merely allows them to be sold, donated, or otherwise relinquished at will by the leaseholder.

In the face of perceived threats not just to the environment, but also to the local economies and traditional ways of life in the valley, the Thompson Divide Coalition gathered a diverse group of members, decided on a powerful free-market approach, and have leveraged growing influence and power to bring leaseholders to the negotiating table. Whether the energy corporations in the area sign deals with the Coalition to void leases, do not receive approval to drill following the NEPA process, or begin numerous new operations in the Divide remains to be seen. But given the attention now focused on this landscape and the BLM's commitment to reexamine leases, the future of the Divide will certainly be a more balanced compromise than it would be without the action of the TDC.

Governance

Leadership: The 12-member Board of Directors have backgrounds ranging from ranching to business to community leadership to conservation to law. These diverse backgrounds aid in attaining a broader perspective and a savvy and efficacy when it comes to negotiating. The two staff members of the TDC were selected for their experience in politics at the state and national levels. This diverse leadership has created a powerful organization that has been able to leverage growing influence.

Structure: The Coalition has a Board of Directors composed of various community members. The group also retains a full-time staff consisting of two members: an Executive Director and an Outreach and Operations Coordinator. The Board convenes at monthly meetings and steers the direction of the group and the staff implements this direction. The Executive Director leads negotiations and work with leaseholders. The Outreach and Operations Coordinator undertakes much of the community and grassroots organizing.

Type of Initiative: The TDC is a formal institution with 501 (c)3 nonprofit status.

Authority: At this stage of the BLM leasing process, the Coalition does not have any direct power over the actions of federal land managers or leaseholders in the area. Instead, they hope to persuade energy companies to accept fair compensation, and enact permanent protective legislation by leveraging political and monetary support from within the community.

Participants

The Thompson Divide Coalition has many organizational partners that represent a broad array of interests. These partners carry out environmental assessments, create additional leverage, enlarge the group's support, provide expertise and consultation, and perform other functions in helping to protect the Divide. Support is also gathered through the inclusion of the local community through a high social media presence and many local events. Individuals do not join the Coalition; instead, they may support its work through donations of money or time, signing petitions, and writing letters to further the cause.

Key Partners: Among the key partners of the Coalition are the Roaring Fork Conservancy, the Trust for Public Land, Trout Unlimited, Sportsmen for Thompson Divide, and Wilderness Workshop. The Roaring Fork Conservancy conducts water analysis in the Divide, and the Trust for Public Land utilizes an advisory role, having aided in similar free-market conservation projects before. The relationship between Wilderness Workshop and the Coalition is perhaps the more interesting, and maybe more fruitful, of the partnerships.

Wilderness Workshop (WW) is an organization whose aim is "protecting wild places and wildlife, for their sake… and ours."[11] This organization performs work throughout Colorado, and in the case of the Thompson Divide has acted as an environmental watchdog. Wilderness Workshop was instrumental in exposing the BLM's failure to comply with NEPA when these leases were first issued. It was their discovery, which forced the agency to undertake the "leasing deficiency" procedures of NEPA. This has helped to add a level of uncertainty to leaseholders' claims and created an impetus for the involved energy companies to negotiate with the free-market approach of the Coalition.

Mission and Primary Objectives

Mission: "The mission of the Thompson Divide Coalition is to secure permanent protection from oil and gas development on Federal lands in the Thompson Divide area including the Thompson Creek and Four Mile Creek watersheds, as well as portions of the Muddy Basin, Coal Basin, and the headwaters of East Divide Creek."[12]

Objectives: In order to fulfill its mission, the TDC is pursuing several objectives. The first is negotiations with

energy companies to buy out their leases directly. After initial noncommunication, corporations such as Ursa Resources are now coming to the table for discussions, giving hope to the possibility of a successful buyout. The completion of this objective is contingent upon permanent protection for the Divide (for example, through the realization of the second objective).

The second objective is the passage of the Thompson Divide Withdrawal and Protection Act. This act, sponsored by Michael Bennet, Senator from Colorado, has two major functions, both of which are vital to the mission of the TDC. The first is the withdrawal of federal lands in the Divide to any future extractive leases. This does not impinge upon valid existing leases, but only prevents new leases from being created in the Divide. Secondly, it allows for the "retirement, purchase, donation, voluntary exchange, or other acquisition of mineral and other interests in land from willing sellers within the Thompson Divide Withdrawal and Protection Area."[13] In other words, this act clears the path for the type of transaction the TDC is looking to perform. Zane Kessler, Executive Director of the Coalition, is hopeful about the passage of this bill, noting that when it comes to this legislation, "there really is no controversy."[14] This is especially true considering that sales will be negotiated so that they are contingent upon passage of this Act: thus, if companies settle, and want their money, they too will support this legislation.

Motivations for Initiating Effort

The actions of the TDC are proactive, not reactive. In its current state, the Thompson Divide consists of a relatively undeveloped ecosystem, which supports a local economy of about 300 jobs and $30 million per year in direct and secondary statewide economic value.[15] It is these current economic and ecological values that the Coalition is striving to protect before they are diminished by the roads, pollution, and other impacts of natural gas extraction and development. The Coalition believes these values and current economic benefits are greater than the potential returns of drilling in the Divide, and the ensuing economic benefits that would accompany the extraction of oil and gas.

Major Strategies

Research: Much of the research in the Divide area is commissioned by the Coalition itself in order to demonstrate the pristine ecological conditions or the healthy economics of the region. Two such studies include the Thompson Divide Baseline Water Quality Study[16] and The Economic Contribution of Thompson Divide to Western Colorado.[17] Such studies are generally commissioned in order to prove the existing ecological, recreation, and amenity values of the Divide which are threatened by extractive development.

Planning: The planning of the TDC is an inclusive affair, which utilizes the broad experiences of all its members and staff. By recognizing the value of these different perspectives in their organization, the TDC is able to move forward in a more balanced, fair, and intelligent manner in all of its operations.

Regulation: Regulation, in the form of legislation, is being introduced by Senator Michael Bennet at the behest of the Coalition and others. This bill, The Thompson Divide Withdrawal and Protection Act, would eliminate any new attempts at extraction on public lands in the Thompson Divide Area. Despite the national political climate, those at the Coalition are hopeful about the passage of this act, due to its middle-ground approach and the support from nearly all local stakeholders.

Restoration: The Coalition is proud that, in its current state, the Divide needs no restoration, only continued protection. As such, no restoration projects are attempted. If they were to become necessary, the Coalition will have failed in its mission.

Communication: Communication is one of the areas where the Coalition is especially effective. This is obvious in two main avenues of communications: those between the Coalition and the public, and between the Coalition and the private sector.

The social media presence of the TDC is robust, with nearly constant activity on their Facebook page for their nearly 2,000 followers, not just from Board members or staff, but from concerned community members as well. The page has turned into a virtual gathering place to discuss everything from the latest in the Coalition's activity to outdoor plans and favorite places in the Divide. This presence has helped to galvanize residents, ensure successful social gatherings and meet-ups in support of the divide, and increased awareness and funds in support of the issue of extractive industry in this region.

The communication between the Coalition and the private sector has also been quite successful since about May 2013, with ongoing negotiations between the groups. The Coalition has kept communications to the public "in-line, so that we are not demonizing the industry."[18] In doing so, they have kept the door open so that, increasingly, businesses are joining in on negotiations that they can trust will be civil. In communications with industry members, the Coalition has been "as business-like as possible"[19] in order to facilitate the free-market approach to conservation.

Besides the above mentioned strategies, the Thompson Divide Coalition also pursues these other tools in order to fulfill its mission:

Buyouts: Recognizing the previous investment and the restrictions of finances on corporate actions, the TDC is attempting to buy out oil and gas development leases in the Divide. Initially this meant offering the same prices that these companies purchased them for. By attempting to offer buyouts with no economic loss for companies, the Coalition had hoped to perform these buyouts quickly; instead the energy companies either flatly refused or ignored their offer. This had led to slowly escalating sessions of negotiation, as energy companies are realizing the Coalition may be their best chance for a return on their investment.

Maintaining Pressure: Through high levels of press, social network activity, and more, the Coalition is attempting to keep its supporters interested and engaged in the fight against energy development in the Divide.

Ecosystems Characteristics and Threats

The Ecosystem: The Thompson Divide Area is composed primarily of unfragmented mid-elevation forests: pines, juniper, and aspen thrive here. According to the Colorado Division of Wildlife, the Thompson Divide Area also "provides high quality habitat for a variety of wildlife including; mule deer, elk, moose, black bear, lynx, native cutthroat trout, a variety of small mammals, and several raptor species."[20] The ecosystem is relatively intact, with little development and few roads. The connective corridors, waterways which are "healthy, uncontaminated and support significant populations of aquatic organisms,"[21] and overall health and size of the region are vital natural resources not just for Divide area residents but for the whole state of Colorado as well.

Despite this relatively intact state, it is worth noting that the Divide is not entirely a pristine landscape. The area has experienced drilling activity in the past, is home to a small natural gas storage facility, and is transected by a delivery pipeline.[22] In addition, a number of small, one-lane dirt tracks allow for 4WD vehicles to traverse much of the area. Finally, it must be noted that ranching and grazing, although less environmentally impactful than oil and gas development, have left their mark on the area in the form of fencing, roads, and the presence of nonnative species: cattle and horses.

Despite these caveats, the landscape's remaining natural characteristics provide crucial wildlife habitat and support a sustainable rural economy for surrounding communities. TDC argues the impacts of future oil and gas development would certainly jeopardize these benefits.

Threats: The biggest threat to the ecosystems of the Divide is the possible development of more oil and gas wells in pristine areas of national forest land. This development will entail the creation of roads, the threat of pollution of hazardous substances, noise, and light, and the direct destruction of wildlife habitat. The most threatened terrestrial wildlife are mule deer, elk, lynx, black bear, raptors, moose, and bats; cutthroat trout and certain amphibians are also highly threatened.[23] These are threats not only to the natural landscape, but to the dependent local economic landscape as well.

If the Coalition fulfills its goal and protects these lands, there is another, albeit more subtle, risk to the environment. Recreation ecology is a field of study, which seeks to understand the impacts of human recreation on environments and biota. According to recreation ecologist David N. Coles, "First among the primary conclusions of recreation ecology is the simple notion that impact is inevitable with recreation. Avoiding impact is not an option, unless all recreation use is curtailed."[24] Thus, there remains an ecological risk to the Divide as its recreation values continue to be central to the local economy and culture. The TDC does not advocate for any restrictions on recreation.

Distribution of Protected Land: The issues of the Thompson Divide illustrate an interesting conundrum in conservation. Most of the land that is being threatened should be, by its classification as public land, under protection. While this designation as a national forest does prevent sub-division, private development, and other forms of environmental disruption, the fact that the BLM retains sub-surface mineral rights means that extractive industries are actually encouraged to operate here.

Adjacent to the Thompson Divide Area are two public lands where strong protections against drilling, or development of any kind, are in place: the Raggeds and Maroon Bells-Snowmass Wilderness Areas. It is important to the Coalition to help increase the landscape scale of those protections by preventing extractive development in the Divide.

Monitoring, Assessment, and Evaluation

Baseline Conditions: The TDC commissions studies that illustrate the baseline, near-pristine conditions of the Divide, because currently there have been little substantive impacts from development. These studies show the intactness and ecological health of the region in order to demonstrate what is at stake here, and what might be lost if extractive industries become more prevalent in the area.

Monitoring: The Coalition does not perform any environmental monitoring as the existing gas leases are not currently being developed and, thus, the threat to the ecosystem remains a possibility, not an acting force.

Evaluation: The results of commissioned studies have shown that the Divide is a healthy, intact region. The TDC uses this information to prove the values provided by the ecosystem and to aid in the protection of this region.

Accomplishments/Impacts

So far, the Coalition has helped to persuade the BLM to suspend the existing leases in the Divide with stipulations: namely, "curative" NEPA analysis.[25] The true impact of the Coalition's work has yet to be seen. The question is: will they be able to protect the Divide from oil and gas development indefinitely?

The TDC has also successfully worked with Senator Michael Bennet (D-Colorado) to bring about legislative action through the Thompson Divide Withdrawal and Protection Act of 2012.

Factors Facilitating Progress

Diverse Coalition: Due to the collection of "such crazy and unusual bedfellows,"[26] the Coalition has created a broad knowledge base and source of perspectives which has led to success.

Local Sentiment: Many locals live in the Divide because of their love for its wild, natural qualities. Hence, gaining local support in order to protect this area has been very successful. This has meant greater funding for the Coalition and higher levels of political leverage.

Working Examples: While the Coalition is the first to take the free-market approach to conservation in Colorado, this method has been successfully utilized in two other states—Montana and Wyoming. In each of those cases, the Rocky Mountain Front and the Hoback Basin, respectively, the leases granted to oil and gas companies were bought out in order to conserve the ecological and social values of the landscape. These trail-blazing efforts have shown the people of the Divide what is possible, and given them a roadmap to do it.

Economic Conditions: Due to the current glut of natural gas in the U.S., the economic pressures to drill in the Divide are currently lower than they might otherwise be. Given the variability in both the market and the risks involved with well outputs, it may be the better, safer business choice to accept the concrete deals and assured returns provided by the Coalition. This means that now is the perfect time for the TDC to be doing their work to secure permanent protection for this area.

Challenges

Existing Leases: Although negotiations are underway, current leaseholders are still the largest obstacle to the Coalition. Solutions, such as those described above, must be sought to ensure that the Divide does not suffer from energy development.

Relating Conservation to the Private Sector: The purpose of any corporation is to generate a profit for its shareholders. The companies holding leases in the Divide are no different. The reason for private resistance to negotiations with the TDC is that these companies have invested in an opportunity to gain profit here in the Divide, and to prematurely sell these leases, without knowing the values they may hold, could be sacrificing those profits and harming their shareholders.

Agency Structure: A major challenge for the Coalition has been pushing through the "bureaucratic spider's web" of working with an agency (i.e., the BLM), which is designed to facilitate the extraction of mineral resources, not the transfer of those rights to organizations for conservation purposes. It is in part due to this organizational structure that the Thompson Divide Protection and Withdrawal Act is necessary to facilitate these transfers.

National Politics: The ongoing popularity of the buzz-phrase "energy independence" has, despite current economic conditions, increased pressure to keep the Divide open to drilling, in the present and into the future. This relates to the question of sacrificing locally for the national good and vice versa. Is it right for federal land to be permanently closed off to national economic and energy benefits in order to help a small local community?

Lessons Learned

Inclusion: The diverse backgrounds, personalities, and parties of the Coalition's Board and staff have resulted in well-formulated solutions, which represent many, if not all, of the perspectives involved.

Civility: Throughout the years of flat-out refusals or silence from oil companies in response to the Coalition's offers to buy leases, it was, perhaps, very tempting to demonize the industry. This would have rallied local, and perhaps even national, support for the TDC—the "little guy" in the fight against big oil. In refraining from doing so, the Coalition is now reaping responses and respect from businesses; these once uncooperative corporations are now coming to the negotiation table. By remaining civil, the Coalition has left the door open for future cooperation and success.

Free-market Capabilities: By understanding and pursuing a free-market approach to conservation, organizations can perform powerful and lasting actions for the environment, using the same language and framework as those who would exploit it for profit. You no longer have to sell an oil company on the ideals of conservation; now you can sell them on its profitability. And that is definitely an easier sell.

Website Links

The Thompson Divide Coalition website can be found here: http://www.savethompsondivide.org/. The Facebook page of the TDC is an active forum for all things relating to the groups work, from events, to news, to discussion.

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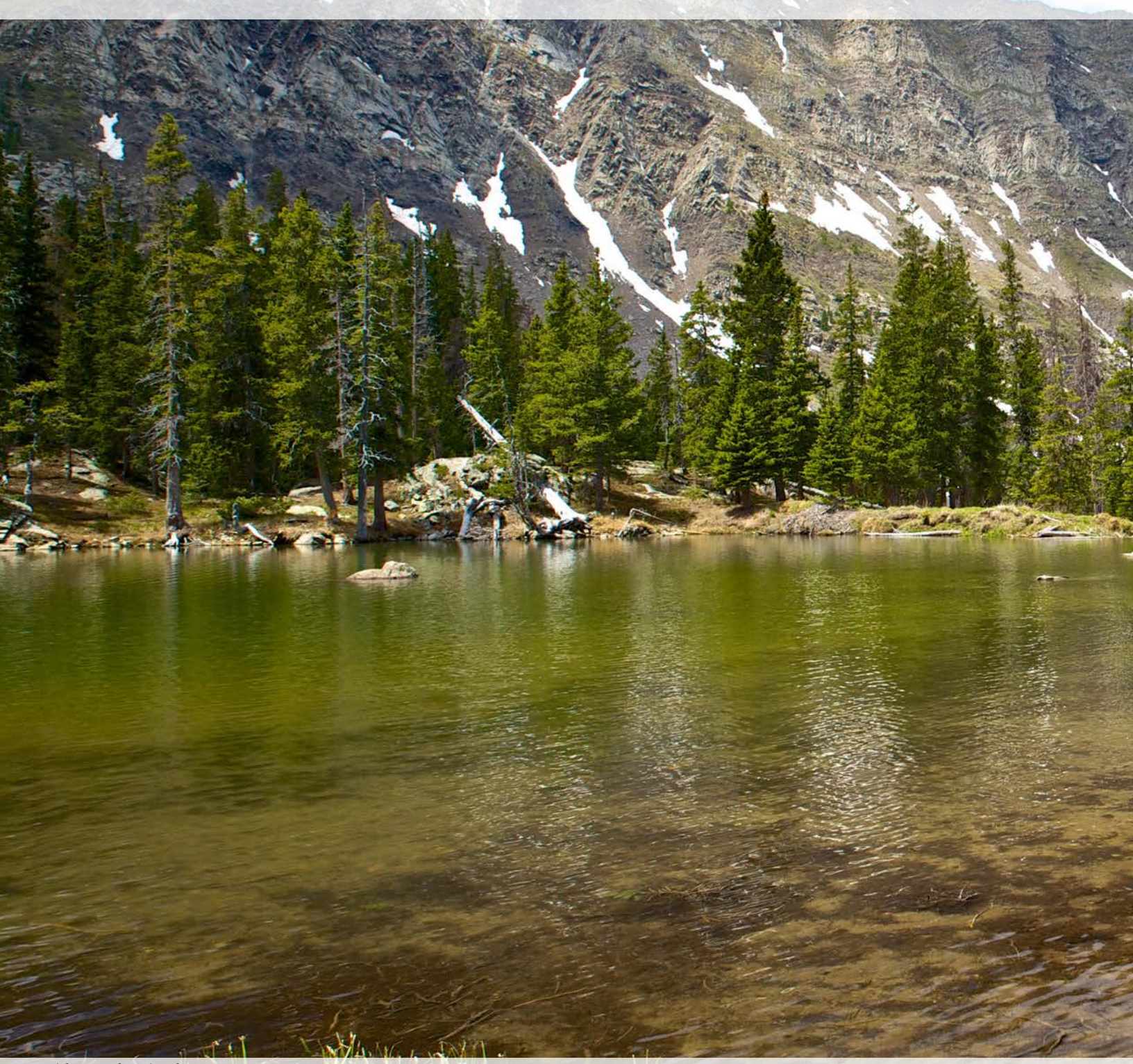
David Spiegel

Spine of the Continent Expedition

Sangre de Cristo Mountains and San Luis Valley

By David Spiegel



About the Author:

David Spiegel (Colorado College class of '12) is the Education and Outreach Coordinator for the State of the Rockies Project.

The Sangre de Cristo range, at the eastern edge of the broad San Luis Valley, runs almost perfectly north to south in a narrow spine of 14,000-foot peaks, towering over the broad and agriculturally rich San Luis Valley.

Our team of four endeavored to traverse almost 100 miles of the region on foot, to see for ourselves how an innovative culture of cooperation for conservation has paid off in a vast network of protected public and private lands. This huge block of protected lands exists thanks to cooperation between multiple federal and state agencies, private landowners, and nongovernmental organizations. Over the course of ten days our journey took us through environments ranging from windswept high alpine tundra to desert grasslands at the valley floor, and everything in between.

We began north of the small mountain town of Crestone, Colorado, a haven for spiritual residents of the state. Our route quickly took us into the heart of the Sangre de Cristo Mountains, where most of the high altitude National Forest Service land is designated wilderness. Up there, in the alpine tundra and pine forests, the landscape is a stunning array of sheer rock cliffs and crystal clear alpine lakes that burst at the seams with native cutthroat trout. Over our four days in the Sangre de Cristo Wilderness, we saw pika, marmots, massive elk herds, and birds of prey. Each of these species has a role to play in the functioning ecosystem of the Sangre de Cristo, and their presence is possible because of the large and untouched habitat afforded to them by the wilderness designation.

After four days of shouldering heavy packs through rough alpine terrain, we descend from the mountains towards the valley floor. With a quick resupply in the town of Crestone, we set off south across the plains towards Great Sand Dunes National Park. Hiking through the plains quickly presents challenges. The June sun is blisteringly hot in the grasslands, and water and shade are scarce. Every small water source is ringed by cottonwood trees and willows in a sea of sand and yucca grass. Each step taken in the loose sand is more difficult than one taken on solid ground. Still, there is a lot of beauty and life in the shade-less sandscape. Among the plethora of spiny plants and cacti, we spot lizards, insects, pronghorn, elk, and coyote.

This national park, which abuts the Sangre de Cristo Wilderness on its northern boundary, provides a roadmap for future potential parks. Because many large tracts of undeveloped public land have already been protected, new parks in the future may require collaboration across multiple public agencies and landowners. The Great Sand Dunes National Park and Preserve is a complex amalgamation of land owned by the Park Service, Nature Conservancy, and the U.S. Fish and Wildlife Service.

Moving south from the Sand Dunes, we cross over the Medano Zapata Ranch. Glad to be walking on solid ground instead of sand, we keep a faster pace across the valley. Owned by the Nature Conservancy and operated by the conservation-minded Ranchlands Company, this ranch is home to a large bison herd, cattle, and folks who experiment with ranching practices that can improve the quality of the land.

Finally, after 10 days of tramping across jagged peaks, low grasslands, and massive sand dunes, we end our journey on the border of the Trinchera Ranch. Owned by billionaire conservationist and philanthropist Louis Bacon and home to some of the state's best elk hunting, the 167,000-acre conservation easement on the Trinchera Ranch is the capstone in this area's massive network of conserved lands. The U.S. Fish and Wildlife Service hopes to build upon this large conservation easement and create an even more ambitious conservation area throughout the valley.

Throughout our journey in the Sangre de Cristo Mountains and the San Luis Valley, we crossed a complex spider's web of land that is managed by a variety of agencies and stakeholders. In this amazing place, however, the collaboration among these land managers has led to the preservation of a single, relatively intact landscape.

The Spine of the Continent Expedition team at Great Sand Dunes National Park. David Spiegel

Large Landscape Conservation Case Study

Sangre de Cristo Conservation Area

By Breton Schwarzenbach

About the Author:
Breton Schwarzenbach (Colorado College class of '14) is a 2013-14 Student Researcher for the State of the Rockies Project.

David Spiegel

Introduction

In 2012, the U.S. Fish and Wildlife Service (USFWS) established the Sangre de Cristo Conservation Area (SCCA) as the 558th National Wildlife Refuge unit. It resulted from a unique public-private conservation partnership between the USFWS, Colorado Open Lands, and private landowner Louis Bacon's Blanca-Trinchera Ranch properties. The Blanca-Trinchera Ranch is the largest adjoining, privately owned ranch in Colorado and encompasses a wide range of ecological variation from low-lying riparian zones to high alpine habitats. Louis Bacon purchased the 176,000-acre Blanca-Trinchera Ranch from the Forbes family in 2007. In 2004, prior to Bacon's acquisition, Malcolm Forbes placed the vast majority of the Trinchera portion of the ranch, more than 80,000 acres, into a conservation easement with Colorado Open Lands. In June 2012, Louis Bacon voluntarily placed an additional easement on the Blanca portion of the ranch, some 90,000 acres. This easement, in conjunction with the existing easement held by Colorado Open Lands, brought the total acreage of conserved land to 167,000 acres and established the SCCA. Then Secretary of the Department of the Interior (DOI) Ken Salazar remarked:

> "Following in the footsteps of our greatest conservationists, Louis Bacon's generosity and passion for the great outdoors is helping us to establish an extraordinary conservation area in one of our nation's most beautiful places. This newest treasure in our National Wildlife Refuge System links together a diverse mosaic of public and private lands, protects working landscapes and water quality, and creates a landscape corridor for fish and wildlife unlike any place in the world."[1]

The U.S. Fish and Wildlife Service, Colorado Open Lands, and the privately owned Blanca-Trinchera Ranch all have stakes in the SCCA. In 2012, all parties agreed to jointly monitor the property under the auspices of the USFWS.

Prior to the deal with the Department of the Interior, Bacon was involved in an extensive legal battle with Xcel Energy and Tri-State Generation and Transmission Association over a transmission project that proposed placing large power lines across the southern portion of his Blanca Ranch. The project, as originally proposed, entailed the construction of a $180-million, 235-kilovolt transmission line from solar capture facilities in the San Luis Valley over La Veta Pass to residents along the Colorado Front Range via large, one-hundred-fifty-foot tall towers. Bacon's litigation team rigorously fought the proposition's claim of electric grid need for the project and viability of solar power from the San Luis Valley. Broader arguments were made to avoid the project and "sacrificing its (the San Luis Valley's) valuable scenic, environmental and economic integrity."[2]

In November 2011, Xcel Energy announced cancelation of the proposed transmission line, citing:

> "This year we saw lower electricity load forecasts, low natural gas prices, lack of federal carbon regulation, expiring tax credits, potential future litigation and a continued sluggish economy. Our conclusion, in light of these factors and also to keep costs low for our customers, is to re-consider our participation in the Southern Colorado Transmission Improvements Project."[3]

Soon thereafter, in June 2012, Louis Bacon placed the Blanca Ranch into a conservation easement and proceeded to trigger the existence of the SCCA, effectively nullifying future consideration of the controversial transmission line project across the Blanca Ranch.

Overview

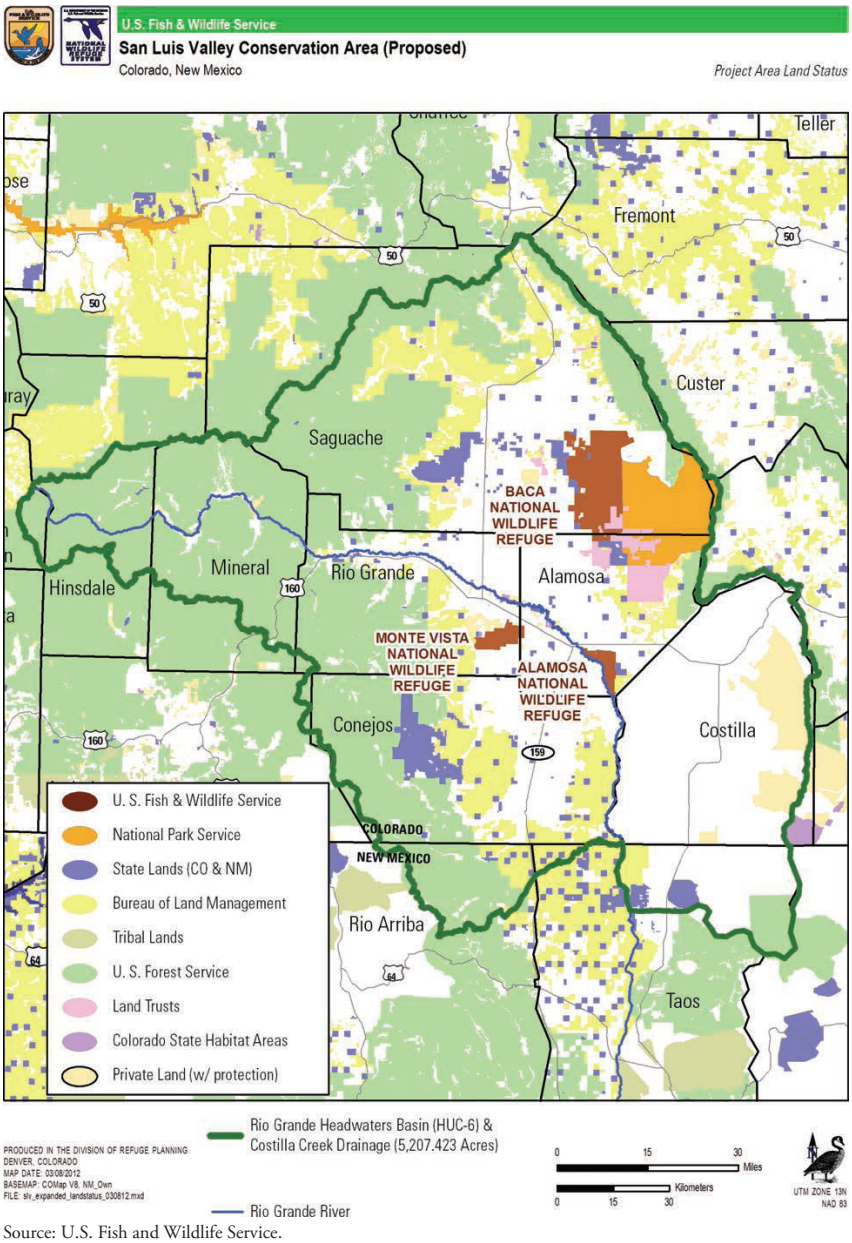
The Sangre de Cristo Conservation Area currently consists of 167,000 acres in Colorado's southern Sangre de Cristo Mountains comprising the two Blanca-Trinchera Ranch easements. The proposed boundary for the conservation area is planned for 280,000 acres, but it is unclear if/when the U.S. Fish and Wildlife Service will accomplish this goal. Originally, the SCCA was lumped into the target goal of 530,000 acres for the more comprehensive San Luis Valley Conservation Area (SLVCA). The SLVCA is an ongoing project spearheaded by the USFWS with a target completion date in 2015. The SLVCA is depicted in **Figure 1**. Both areas are part of the U.S. Fish and Wildlife Service's grand vision for protecting federal trust species through the restoration, protection and enhancement of vital riparian corridors within the San Luis Valley.

The SCCA is strictly a public-private partnership between the USFWS and Trinchera Property Management. However, it is but one piece of the USFWS's larger vision for conservation in the San Luis Valley through a patchwork of partnerships with private landowners, as well as the existing Alamosa, Monte Vista, and Baca National Wildlife Refuges, the National Park Service, The Nature Conservancy's Medano-Zapata Ranch and Colorado Open Lands among other stakeholders. The SCCA serves as a sizeable piece amid a network of existing and ongoing conservation initiatives throughout the valley. Ultimately, the SCCA will fit under the umbrella designation of the San Luis Valley National Wildlife Refuge Complex (SLVNWRC) and adhere to an adaptable conservation plan dictated by the behavioral patterns and habitats of threatened wildlife species.[4]

A November 2012 Federal Register posting outlines the project as follows:

> This conservation area (SCCA) allows the Service to purchase conservation easements using the acquisition authority of the Fish and Wildlife Act of 1956 and the Migratory Bird Conservation Act of 1929. The Federal money used to acquire conservation easements is from the Land and Water Conservation Fund Act of 1965, as amended (16 U.S.C. 460l-4 through 11; funds received under this act are derived primarily from oil and gas leases on the Outer Continental Shelf, motorboat fuel taxes, and the sale of surplus Federal property), and the sale of Federal Duck Stamps [Migratory Bird Hunting and Conservation Stamp Act (16 U.S.C. 718-718j, 48 Stat. 452)]. Additional funding to acquire lands, water, or interests for fish and wildlife conservation purposes could be identified by Congress or donated by nonprofit organizations. The purchase of easements from willing sellers will be subject to available money.[5]

Figure 1: San Luis Valley Conservation Area



Source: U.S. Fish and Wildlife Service.

The SCCA is a keystone to President Obama's America's Great Outdoors initiative. It serves a clear "21st Century conservation agenda" in which large conservation easements serve as: "voluntary partnerships with landowners to conserve rural landscapes while ensuring ranching, farming and other traditional ways of life remain strong."[6] The establishment of the SCCA is testament to the collaborative spirit required to accomplish large landscape conservation agendas in the twenty-first century.

SCCA Mission and Primary Objectives

The conservation area offers an adaptable management plan driven by the needs of key, threatened species. In chapter four of their August 2012 "Land Protection Plan: Sangre de Cristo Conservation Area, Colorado and New Mexico," the USFWS states that:

> The SCCA sits in the San Luis Valley and the adjoining Sangre de Cristo Mountains of central Southern Colorado and Northern New Mexico. The project area contains land in Costilla County in Colorado, as well as a small part of Taos County in New Mexico. The SCCA boundary includes the Sangre de Cristo's tributaries of the Rio Grande between Blanca Peak and the watershed of Costilla Creek. Within the project boundary, the service will strategically find and acquire from willing sellers a proper interest in upland, wetland, and riparian habitats on privately owned lands.
>
> The Service plans to buy or receive donated conservation easements on those identified areas within the project boundaries, and would consider accepting donated fee-title lands as well. These easements will connect and expand existing lands under public and private conservation protection.[7]
>
> The USFWS is working to protect key riparian and other habitats throughout the San Luis Valley to strengthen migratory corridors for threatened bird and wildlife species; they are taking a collaborative approach with private landowners to secure these goals.
>
> Six federal trust species have been identified as being most important to the conservation agenda in the SCCA: Canada Lynx, Rio Grande Cutthroat Trout, Southwest Willow Fly-Catcher, Lewis's Woodpecker, Gunnision Sage Grouse and Sage Thrasher.[8] The USFWS operates with the understanding that restoring habitat for these species will have positive impacts throughout the ecosystem and will help populations of a host of other species of interest including the Rio Grande Chub and Yellow Billed Cuckoo. A thorough understanding of the San Luis Valley's greater ecosystem and its relationship to the aforementioned trust species is necessary for implementing effective management.

Ecosystem

The San Luis Valley is a high mountain desert that embraces a tremendous range in ecological variation, plants, and wildlife. The valley floor, sitting at an average elevation of 7,600 feet above sea level, receives little precipitation. Most surface and ground water is replenished by runoff from the neighboring Sangre de Cristo and San Juan Mountains. The Sangre de Cristo Conservation Area is located in the upper headwaters of the Rio Grande watershed and encompasses numerous drainages on the western flank of the Sangre de Cristo Mountains with both year-round and seasonal flows. Some of the most notable include Sangre de Cristo, Trinchera and Costilla Creeks, all of which are home to the threatened Rio Grande Cutthroat Trout. In terms of habitat, the SCCA has a nearly 7,000-foot elevation change between low-lying riparian zones and high alpine habitats found above tree line on Blanca, Lindsey and Little Bear peaks. In between, there are large portions of dry sagebrush, pinion-juniper, and mixed conifer forests that include sizeable aspen stands.[9]

Such habitat range accounts for a plethora of plant and animal species. The degree of variation between habitat zones is applicable to the broader San Luis Valley ecosystem as well. Over 1,100 different plant species, constituting nearly 30% of Colorado's plant diversity, are found valley-wide.[10] The SCCA is known to support strong elk, black bear, mule deer, pronghorn, bald and golden eagle, and mountain lion populations. A wide variety of birds, including Sandhill Cranes, also use the SCCA and larger San Luis Valley area as an important migration corridor. For the sake of management, the USFWS has identified key habitat types for the target federal trust species in need of protection and, in some cases, enhancement.

The SCCA places strong management emphasis on the need for resilient riparian habitats. These low-lying brushy areas, composed of willow and narrow leaf cottonwood trees, surround and overhang waterways. Their value is two-fold: they provide key nesting habitat for birds like the federally endangered Southwest Willow Fly-Catcher and the locally threatened Lewis's Woodpecker and they enhance riparian habitats by helping to maintain low temperatures and high water quality, as well as food sources for the endemic Rio Grande Cutthroat Trout. Current management practices on the Blanca-Trinchera Ranch have been markedly improving riparian habitats along some of the property's lower drainages.

The SCCA also has strong sagebrush habitats vital to both the endangered Gunnison Sage Grouse, and declining Sage Thrasher. These species are threatened and rely on the dry sagebrush habitats found in the lower portions of the conservation area. Also, the threatened Canada Lynx rely on the conservation area's more montane habitats as a migratory corridor. The Sangre de Cristo Conservation Area was established with these threatened species in mind, and habitat assessment was computed using the software Marxan. **Figure 2** illustrates the service's habitat priorities. The USFWS is particularly concerned with targeting habitats for these threatened species, with the knowledge that the conserved habitats will positively benefit other bird and wildlife species in the valley.

Management/Planning

The USFWS has compiled target habitat data for each species. This data allows the service to fine-tune its objectives in pursuing easements and land acquisitions. Using computer software called Marxan, they applied algorithms to identify and "specify individual conservation targets."[11] They produced species-specific maps of desired habitat within the proposed conservation area. They also computed a map showing the relative conservation priority of habitats within the SCCA boundary (see **Figure 2**).

These assessments are used to determine the value of potential easements to the Conservation Area. Final decisions regarding an easement are dictated by the following categories:

- *Overall conservation value*: Is the property located, in whole or in part, in an area that was selected in 70 percent or more of the spatial conservation priority runs in Marxan?
- *Trust species value*: Does the parcel contain priority habitat that was identified in any of the species-specific maps?
- *Previously unidentified conservation value:* If neither of the preceding thresholds are reached, is there another compelling reason (for example, securing of important water rights, promoting critical habitat connectivity, identification of new species of conservation concern, simplified management of an existing refuge unit, or donation of intact or easily restored habitat) which justifies the property's protection?[12]

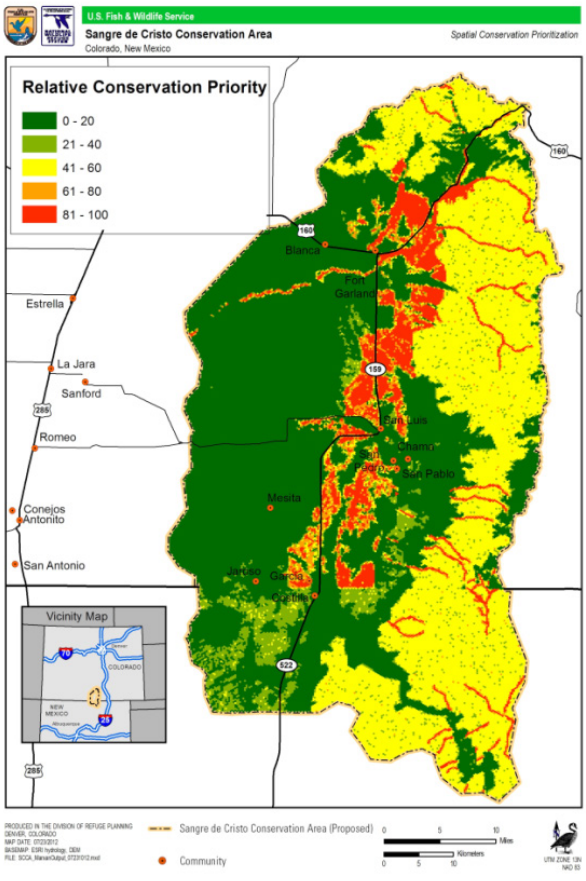
Such GIS map analysis allows for an effective assessment of habitat quality within a given easement and allows USFWS to adequately assess potential easements, focus their efforts, and apply prudent habitat management practices.

Currently, the Blanca and Trinchera Ranches constitute the entire SCCA. According to Mike Blenden, the USFWS project leader based in Alamosa, no other land has been acquired.[13] Habitat assessment seems to be limited to the Marxan data sets, but there are plans to bring staff biologists from USFWS and SRLCC onto the Trinchera-Blanca properties for further evaluation.

Unique Partnership

The U.S. Fish & Wildlife Service is engaged in a uniquely close public-private partnership with the Blanca-Trinchera Ranch and Colorado Open Lands. Currently, these private easement properties constitute the entire SCCA. Unlike

Figure 2: Relative Conservation Priority in the Sangre de Cristo Conservation Area



Source: U.S. Fish and Wildlife Service.

other acquisitions in which USFWS would receive full management rights, Blanca-Trinchera has retained a degree of land management and water rights. The easement document signed in June of 2012, allows for Blanca-Trinchera Ranch operations to be conserved in perpetuity. According to Mike Blenden, project leader of the San Luis Valley National Wildlife Refuge Complex, all parties are fully compliant with one another and open to collaboration over management practices and conservation goals.[14] As long as the Blanca-Trinchera Ranch continues to operate according to its current practices, the USFWS is content. If Blanca-Trinchera plans, for example, to expand its operations, develop new areas of the ranch or build new buildings, they would have to consult the USFWS and Colorado Open Lands. All parties work closely and collaboratively to help improve and manage the ecosystem. As noted by Mike Blenden of the U.S. Fish & Wildlife Service, the service has been highly supportive of management practices in place at Blanca-Trinchera and feels that the SCCA represents a monumental commitment to conservation in the San Luis Valley and the state of Colorado.[15]

Conclusion

While still in its early stages, the SCCA is a landmark conservation accomplishment in the San Luis Valley. The conservation area accommodates a unique relationship with the current management of Louis Bacon's Blanca-Trinchera Ranch. Assuming that the ranch's management efforts are maintained and continue to comply with the broader goals of the USFWS, as well as the conservation stipulations of the written easement, the SCCA will serve to positively enhance and protect vital migratory bird and wildlife habitat as part of the larger San Luis Valley National Wildlife Refuge Complex.

Louis Bacon's commitment to prudent land management practices and the strength of the rapidly improving SCCA ecosystem bode well for the future health of wildlife corridors in the valley. Mr. Bacon's financial capacity to protect and manage the Blanca-Trinchera properties in compliance with USFWS goals, is a unique circumstance that has tremendous upside for lasting conservation in Colorado's southern Sangre de Cristo Mountains. Despite the obvious gains, it is unclear if the full 280,000 acres will be achieved. USFWS is currently working to secure additional easements from private landowners through the Land and Water Conservation Fund. There is no definitive time frame for when these goals will be met because the success of the SCCA hinges on the generosity and intentions of landowners.

The SCCA provides unique lessons on the future and form of large landscape conservation initiatives for the United States in the 21st Century. Louis Bacon's partnership with the USFWS showcases the collaborative spirit needed to accomplish large landscape conservation goals in a restricted political and economic climate. This public-private model has tremendous potential. If landowners have the incentive to work collaboratively with U.S. land management agencies and embrace the benefits of collaborating to protect large tracts of land, conservation in the United States will become more adaptable, widespread, and effective.

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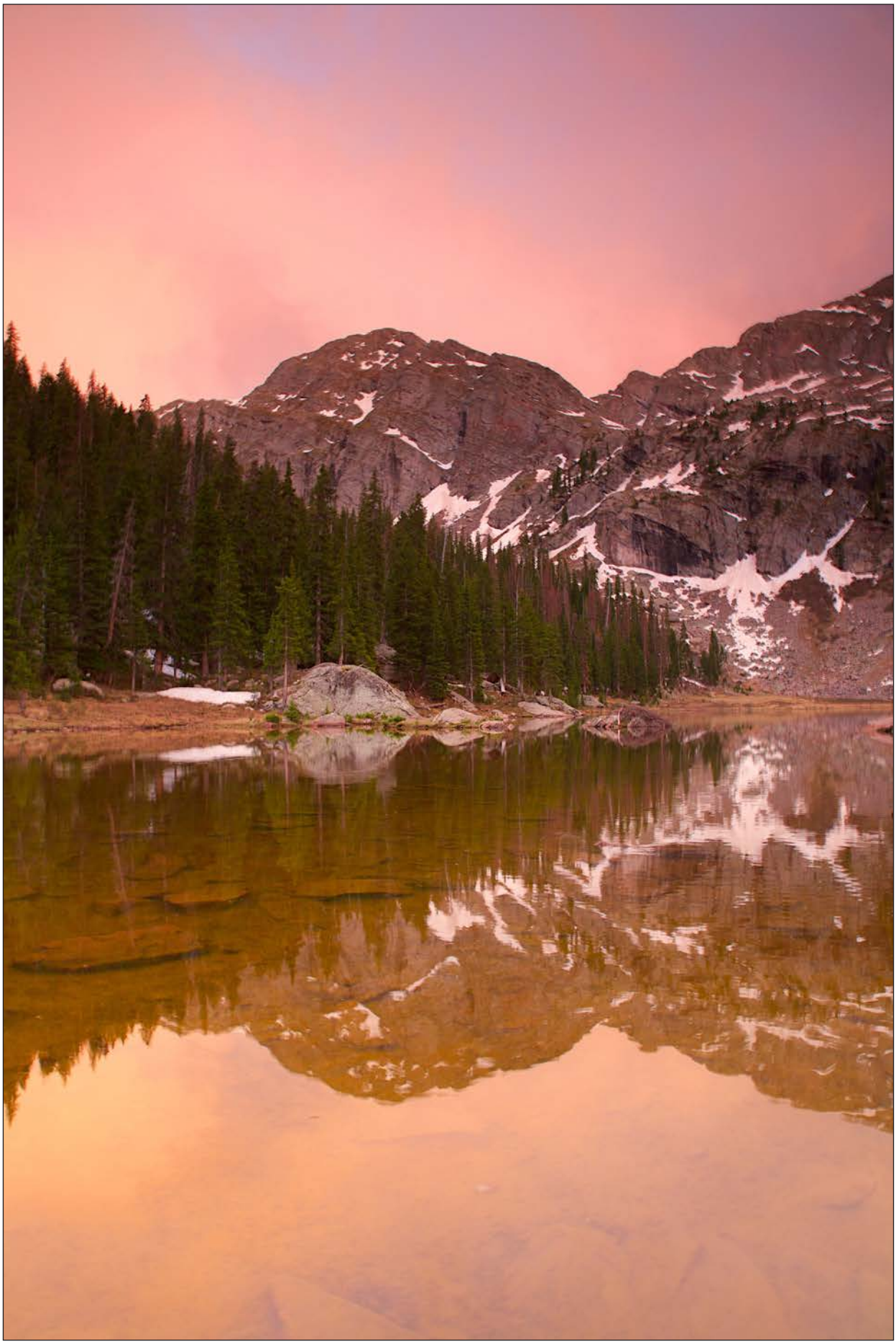


Rito Alto Lake in the Sangre de Cristo Wilderness. David Spiegel

Spine of the Continent Expedition

Gila Bioregion

By David Spiegel

About the Author:

David Spiegel (Colorado College class of '12) is the Education and Outreach Coordinator for the State of the Rockies Project.

David Spiegel

The Gila Wilderness is remarkable not only for its scenic quality, but also for its historical significance as the world's first designated wilderness, established in 1924. It has the unique distinction of being the location where famed conservationist Aldo Leopold developed many of his theories about ecology. Since Leopold's time, however, the Gila has seen drastic changes.

Fires and floods have devastated this landscape. Many trails and backroads are simply gone, eroded by the raging torrent of the typically placid Gila River. Now shallow enough to wade across, it is hard to imagine that this trickle is the reason that massive pine trees have been uprooted and now clog the banks. Lacking recognizable trails, we simply follow the river away from the roads and into the wilderness. Fall is a beautiful time in the Gila, and our journey is delightfully filled with golden colored cottonwood trees and hot springs to soak in.

Trails and forest service roads, however, are not the only things that climate change has devastated. On the natural side of things, indigenous trout species have nearly been wiped out by the fires and floods that degrade their habitat in the Gila River. As a keystone species, the demise of the native Gila Trout is a cause for concern among conservationists. Garrett VeneKlasen, a representative with Trout Unlimited, told us that, "native trout are crucial to the health of these upland watersheds. So even though you don't really care about trout, what you should care about is clean, dependable water for municipal and agricultural use downstream."

On the human side of the story, many local businesses, ranches, and outfitters are closing up shop as the temperature rises, soil is degraded, and wildlife suffers. Hunting guide Jim Mater owns his own outfitting business in the Gila, where he guides tourists on horse packing and hunting trips. He has been hunting in this area for thirty years, but is worried about the future. Sitting on his property, he told us that, "The biggest change is temperature. Every year the hot season here is getting hotter and longer with very little rainfall in the last ten years. Trees are stressed, animals are stressed– you can just feel it." But that isn't the only problem that Jim sees for the area. Like many hunters and ranchers, he does not welcome the recently reintroduced Mexican Gray Wolf.

After being extirpated from the Gila Bioregion in the 1970s, the Mexican Gray Wolf was reintroduced to the landscape in 1998. The goal of the program was to establish a population of 100 wolves by 2006. By 2012, however, only 75 wolves survived in the Gila. Like everything else here, it seems that the wolves struggle to survive. This is, in part, because of a deficient gene pool that stems from no more than seven captive wolves in the original breeding program. The other challenge that wolves face is their interaction with humans on the landscape. Hunters and ranchers dislike the wolves because of their effects on game and livestock.

With businesses closing up shop in the small towns around the area, Jim elaborates that, "as humans we would like to live in an environment where you can see the future– where you can predict your income, know how many cattle you'll have, count on certain things every year. In this particular area of the United States, there is no calculation of the future anymore. With floods, wolves, and fires, I don't think that uncertainty will ever go away."

Conservationists, on the other hand, disagree about the wolf's adverse effects on local business, citing tourist revenues and ecosystem services as reasons that wolf populations need to be restored– and that local communities need to learn to coexist with the lobo. Bryan Bird told us that, "As Aldo Leopold described early on in his career, if you take one piece out of these large ecosystems there can be a catastrophic cascading effects. Having wolves on the landscape is crucial to the health of the area." Bird works with WildEarth Guardians, a conservation organization that is pursuing an innovative strategy in the Gila region. Instead of taking conservation issues to court, Guardians is offering local landowners a buyout option. By buying out grazing rights on federal public land, WildEarth Guardians hopes to gives wolves more room to roam with less interaction with humans. At the same time, ranchers who are having hard times making ends meet get a nice pay day for their trouble. "Many of these communities are seeing the end of their traditional economies like logging, mining and grazing," Bird told us. "As we've seen in Yellowstone, charismatic wildlife like wolves, bison and elk can bring in a lot of tourism and provide an alternative type of income to resource extraction. We are offering an economic incentive to ranchers to waive their grazing permits so that we can get congress to designate more wilderness lands in the Gila Bioregion."

Simply put, life is tough out here whether you are a person, a trout, or a wolf. In a place where climate change is having clear-cut effects on the landscape, conservationists and local businesses are having trouble achieving their goals.

David Spiegel

Landscape Profile
Greater Gila Bioregion
By Aaron Chin

About the Author:
Aaron Chin (Colorado College class of '14) is a 2013-14 Student Researcher for the State of the Rockies Project.

David Spiegel

Landscape Profile

From an ecological perspective, the Greater Gila Bioregion includes over six million acres managed by the Bureau of Land Management (BLM), U.S. Forest Service (USFS) and the National Park Service (NPS). This network of public lands includes portions of the Gila National Forest, the Cibola National Forest, the Apache Sitgreaves National Forest, and the Gila Cliff Dwellings National Monument, among other federal lands. Additionally, private and tribal lands, including the San Carlos Apache Indian Reservation, comprise the rest of the bioregion's ten million acres. The bioregion is part of both the Department of Interior's Southern Rockies and Desert Landscape Conservation Cooperatives, as seen in **Figure 1**.[1]

Named in his honor, the Aldo Leopold Wilderness lies within the boundaries of the Gila National Forest and, in combination with the adjacent Gila Wilderness, the two are considered the starting point for the modern American wilderness-conservation movement. Additionally, numerous BLM-managed Wilderness Study Areas (WSA), Areas of Critical Environmental Concern (ACEC) and Special Management Areas (SMA) are found within the bioregion. The Greater Gila Bioregion is home to the Blue Range Wolf Recovery Area. Wolf reintroduction in the Gila region remains a contentious issue with the local ranching community.

Yellowstone of the Southwest

The greater Gila Bioregion spans a variety of ecosystems from dry arid desert land to mountains densely populated with ponderosa pines. The lowest elevations lie at around 4,000 feet and make up the canyon and valley floors, scattered with pinon-juniper-oak woodlands and open grasslands. Mid-elevation ecosystems are characterized by large populations of ponderosa pines and give way to spruce, fir and aspen groves at high elevations. Mountains rise up to 11,000 feet and support a range of high elevation wildlife. The variation in elevation and topography supports many different species, which have adapted to the region's climate.[2]

The Gila contains vast areas of public lands, which has allowed a range of species to survive. The region is defined by its incredibly diverse plant and animal species and is home to a number of endangered or threatened species. The region contains more than 500 species of vertebrates of which more than 45 are classified as sensitive, threatened or endangered, including the Mexican gray wolf, jaguar, Aplomado falcon, Mexican spotted owl, Gila chub, Gila topminnow, loach minnow, Gila trout, southwest willow flycatcher, Chiricahua leopard frog and two species of bat. The Mexican gray wolf is the smallest subspecies of gray wolf and its reintroduction into the wild has been an ongoing issue in the Gila region. Originally eradicated due to livestock interests, the Mexican gray wolf was recently reintroduced to the region and remains one of the most endangered mammals in North America.[3]

The Gila River in many ways serves as the lifeblood in the greater Gila Bioregion, supporting over 300 species of birds and two native trout species. The Gila Bioregion lies adjacent to the Chihuahuan Desert, the largest desert ecosystem in North America, and therefore, it is imperative that the region's water sources continue to be protected. The Gila and Apache trout, the two native trout species in the Gila, have seen population declines largely due to competition with nonnative species and erosion and sedimentation along rivers caused by livestock grazing.[4]

The Gila Wilderness: World's First Designated Wilderness

The Gila Bioregion has a long history of human influence, dating back to around 1000 AD when the Mimbres and Chiricah tribes inhabited the area. The latter half of the 1800s was defined by an influx of settlers and an accompanying increase in resource-consumptive uses, mostly in the form of mining and logging. However, the Gila Wilderness is also the birthplace of the American conservation movement. Fueled by a land ethic fiercely rejecting the traditional economic, utilitarian management strategy, Forest Service employee Aldo Leopold convinced his Washington D.C. superiors to adopt a management strategy that was revolutionary at the time: to set aside land for the sole purpose of preserving its untamed nature. On June 3rd, 1924, a 750,000-acre swath of New Mexican mountains and desert range was designated as the Gila Wilderness, the first area in the U.S., and the world, to be managed as a wilderness area.[5]

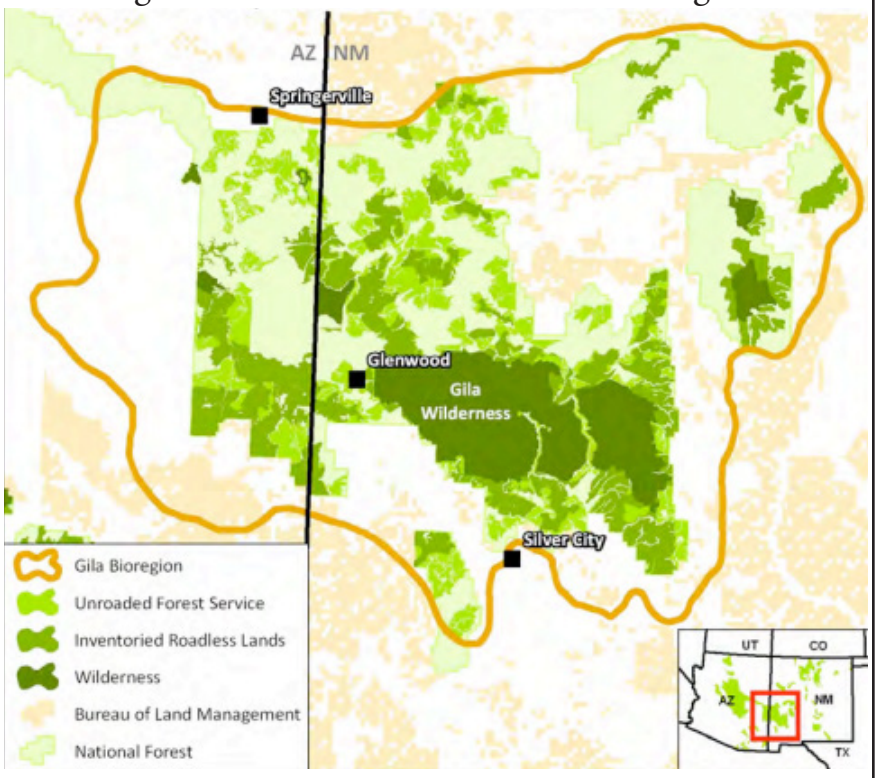
The Gila National Forest is the most distinctive jurisdictional entity in the Gila Bioregion, but plots of BLM and private land make up a large portion of the

Figure 1: The Gila Bioregion with the Southern Rockies and Desert Landscape Conservation Cooperatives

Source: WildEarth Guardians, U.S. Fish and Wildlife Service.

bioregion as seen in **Figure 2**. From a landscape perspective, the Gila Bioregion is in an ecological crossroad connecting the Southern Rockies, the Sierra Madre Mountain Range, the Sonoran Desert and the Chihuahua Desert.

Figure 2: Federal Lands in the Gila Bioregion



Source: WildEarth Guardians.

Today, conservation efforts in the region have adapted to the changing political climate of federal land conservation and occur on both private and public lands. Ranching and agriculture have impacted local ecosystems through the removal of prairie dogs and wolves, two keystone species. Reintroduction and restoration efforts are major components to present day conservation efforts in the Gila Bioregion. Roughly 85% of public lands are used for grazing livestock, thus cooperation and participation of private actors with public lands managers is a challenge, but an essential facet of conservation in the Gila Bioregion.[6]

WildEarth Guardians: Conservation Advocates for Wolf Reintroduction

Mexican gray wolf reintroduction is an issue that simultaneously draws local opposition and unites regional and national conservation organizations. WildEarth Guardians and its members, a conservation organization addressing the ecological issues in the Gila, are strong supporters for the successful reintroduction of wolves in the area, which they believe is a key step to restoring the bioregion to its original ecological form. However, WildEarth Guardians' efforts are challenged by forces in the livestock industry, which condemn the reintroduction of the wolf as an impediment to raising cattle. If not for the wolf, the state of contention between local conservation efforts and ranchers would be greatly diminished. The struggle between livestock and ecological interests is indicative of persistent local pressure that can exist as a backdrop and affect conservation initiatives.

Other conservation groups, such as the Defenders of Wildlife and the Center for Biological Diversity, are tied to the area through their interest in "species of concern" and collaborate with WildEarth Guardians in some campaigns.

There is a loose coalition of conservation groups surrounding wolf reintroduction issues, but groups in the coalition are not necessarily bound by the interests of their respective partners. Mexicanwolves.org is a product of the shared objective of wolf recovery and an example of the nature of collaboration between conservation organizations. The mission statement on mexicanwolves.org's web page says, "While all the organizations participating in mexicanwolves.org share the common goal of recovering the Mexican gray wolf, individuals can, and sometimes do, differ in their approaches to specific issues."[7] For conservation groups in the Gila Wilderness, collaboration is usually representative of an effort to maintain communication and "not step on each other's toes," rather than a formal coalition that benefits from shared resources.[8] The nonbinding aspects of mexicanwolves.org allow the participating organizations to maintain a unique and expansive array of approaches to wolf conservation.

However, the political and legal nature of some issues, coupled with the limited financial capacity of some nonprofits, necessitates formal collaboration and support. For example, the WildEarth Guardians are working with the Defenders of Wildlife, the New Mexico Wilderness Alliance, the Wildlands Network, and the Center for Biological Diversity to push Congress to designate retired grazing lands as part of the Gila National Forest.

Land acquisition and restoration is a key tenet of the WildEarth Guardians' conservation strategy. As WildEarth Guardians Executive Director John Horning sees it, land acquisition through graze permit retirement is an integral component to reducing livestock-wolf conflicts and mitigating damage in riparian areas by agriculture. Land acquisition and restoration are done in the hopes of improving the ecological conditions for wolves, while also reducing the potential of livestock-wolf conflicts. With 85% of the lands in the Gila Wilderness in use for livestock grazing, the expansion of wolf range is an essential facet of reintroduction. Although WildEarth Guardians has a long list of private donors, the group relies on state and federal funding through programs under the Clean Water Act, Environmental Protection Agency and the U.S. Fish and Wildlife Service for restoration efforts.[9]

Although the Mexican gray wolf is on the Endangered Species List, it is listed as a "non-essential experimental population," essentially excluding the use of a large portion of the legal mechanisms supported under the Endangered Species

Act. Still, litigation can be a useful tool for accomplishing conservation objectives, such as updating the U.S. Fish and Wildlife's Mexican Gray Wolf Recovery Plan, which has not been changed since its inception in 1982.[10] Litigation is not a first choice, but there are times "when the law must be enforced and the laws are used mercilessly."[11]

A sharp contrast in conservation strategies exists between environmental nonprofits, such as WildEarth Guardians and cooperative management structures, as exhibited through the Blackfoot Challenge, a community-collaborative conservation initiative in Montana. Whereas decisions made through cooperative conservation initiatives are inherently objective and sensitive to the interests of all stakeholders, WildEarth Guardians enjoys a certain level of agency power that allows them to exclusively pursue their agenda without regard for other stakeholders.

The Gila Under Threat: Implications for the Future

Even with the long history of conservation associated with the Gila and its network of protected public lands, the region is still faced with numerous conservation challenges for the 21st Century. Population growth continues to be an issue in the region. New Mexico and Arizona are inhabited by over eight million people, and although populations have remained low in counties that lie within the Gila Bioregion, this has changed with an increased demand for houses that lie within the wildland-urban interface (WUI). An increase in populations within the Gila WUI poses threats to wildlife, as people develop in ecologically intact areas. Furthermore, growing WUI population increases threats to humans by wildfires and makes it increasingly difficult to implement wildfire management programs, such as controlled burning and thinning.[12]

Public land grazing is a central issue for the future management of the Gila Region and has impacts on native species, water use, large carnivores, fire ecology and aquatic ecosystems. The ongoing debate between wolf advocates and the cattle industry over the species reintroduction continues to highlight this point of conflict in the area.

Wildfires, drought and a changing climate continue to make life difficult for the region's human inhabitants, as well as plant and animal species. Wildfires in the bioregion continue to have substantial adverse effects in the Gila, as a history of management focused on suppression has caused large fuel buildups and dangerous fire conditions. This affects all users of public lands within the region from ranchers, to outfitters, to recreationalists. Persistent drought and a changing climate have changed traditional grazing practices, while also affecting ecosystems and the variety of species that are reliant upon stable natural systems.

Possible damming projects on the Gila River, although historically avoided, pose huge threats to both aquatic and terrestrial ecosystems and wildlife.[13] Proposals for dams and diversions along the river's route are rooted in the need for capturing the seasonal runoff to store water for later in the year. Advocates for diversion say that the persistent drought and changing climate necessitate a greater storage system to benefit local communities and economies. However, conservation advocates argue that it is just those changing natural variables that will require healthy riparian zones throughout the course of the Gila River to support stressed ecosystems. As the state of New Mexico continues to debate how to manage the scarce resource, the implications for both natural systems and local communities show the need to develop a plan that addresses all of the Gila's diverse stakeholders.[14]

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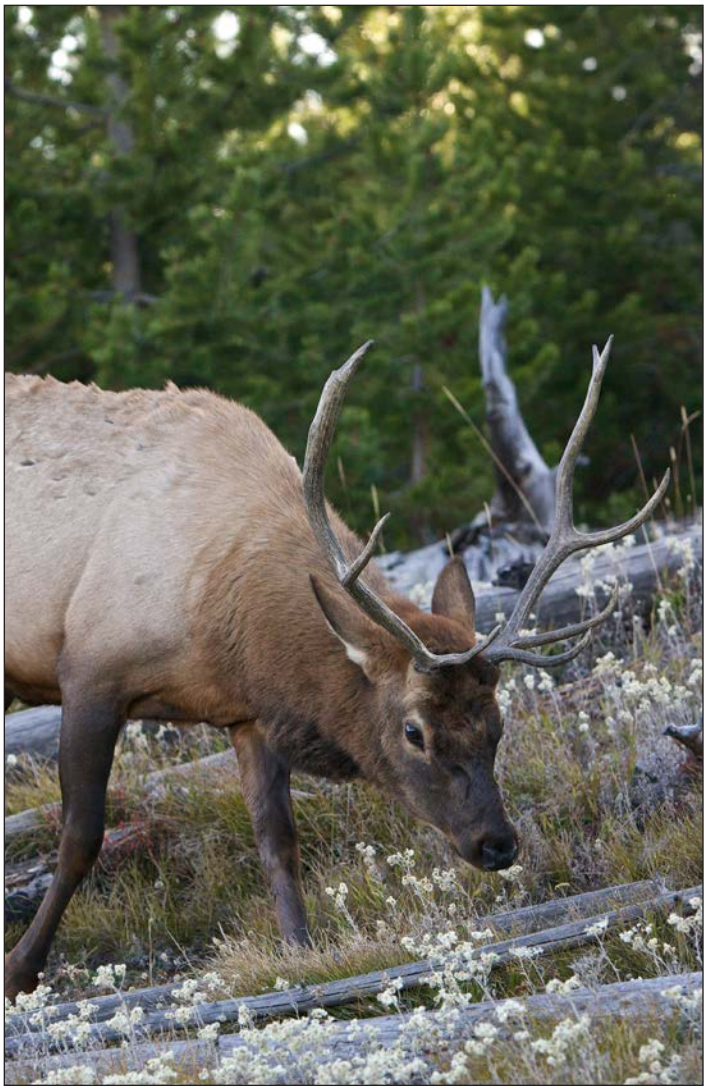


David Spiegel

Rockies Project Photo Contest Honorable Mention: Owls by Brian Grundy.

Special thanks to:

Steve Weaver for his annual contribution of the cover photo.

Jessica Badgeley is the GIS Specialist for the 2013-14 Rockies Project. Originally from Seattle, Washington, she will graduate in May 2015 with a geology major and mathematics minor. During the school year, Jessica works in Colorado College's GIS lab, helping students learn to navigate GIS. One of her recent projects included assembling an informative poster about the ins-and-outs of digital elevation models. Jessica also has a great interest in the outdoors and conservation that fuels her enthusiasm for working with the Rockies Project.

Brendan Boepple is the Assistant Project Director for the State of the Rockies Project. In his fourth year with the Project, Brendan previously held the position of Project Program Coordinator from 2011 to 2013. Prior to that, he was a Student Researcher during the summer of 2010 and researched the Eastern Plains region of the Rocky Mountain States. Originally from Wilton, Connecticut, Brendan graduated from Colorado College in May of 2011 with a political science major and an environmental issues minor. While growing up Brendan developed a love for the outdoors and the environment, and he later worked with environmental organizations like Trout Unlimited and his local conservation land trust. In the future, Brendan hopes to further his education in natural resource policy and management, and later pursue a career in that field. His interests include skiing and fly-fishing, two activities that drew him to the Rocky Mountain region.

Aaron Chin is a Student Researcher for the 2013-2014 Rockies Project. Originally from Northern California, he is a 2014 environmental policy major. After he graduates, Aaron wants to pursue a career in either social or environmental development. Aaron spent much of his childhood snowboarding, hiking, and camping in the areas around Redding, California which provided him with a great appreciation for the natural world. His other interests include reading, sports, cooking, and biking.

Sawyer Connelly is a Student Researcher for the 2013-2014 Rockies Project. Originally from Hardwick, Vermont, he will graduate in the Fall of 2014 with a degree in environmental science and a minor in English. His interest in the natural world developed from exploring the forests of New England and the beautiful coast of Cape Cod to Maine as a child. Upon graduating he hopes to spend some time traveling before he plans to attend graduate school and then answer the call of the ocean in northern New England, his home. In his free time he enjoys fly-fishing, climbing, his Siberian huskies, and writing.

Matthew C. Gottfried is the GIS Technical Director at Colorado College and the 2013-14 Technical Liaison for the State of the Rockies Project, overseeing tasks including data assimilation, GIS analysis, and logistics management. He received his B.S. (1999) in field biology and environmental studies from Ohio Northern University and his M.A. (2005) in geography and planning from the University of Toledo where his focus was on land use planning and GIS. Matt's regional research focus includes studying the biogeography of critical species, land use planning, and conservation management practices of local natural resources.

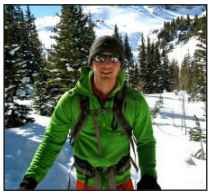
Walter E. Hecox is professor of economics and environmental science, and project director for the State of the Rockies Project at Colorado College, Colorado Springs, Colorado. Walt received his B.A. degree from Colorado College (1964) and an M.A. (1967) and Ph.D. (1970) from Syracuse University, Syracuse, New York. He teaches courses in ecological economics and sustainable development. He has conducted research and taken leave to work for the World Bank, U.S. Agency for International Development, U.S. Department of Energy, and Colorado Department of Natural Resources. He is author of *Charting the Colorado Plateau: an Economic and Demographic Exploration* (The Grand Canyon Trust, 1996), co-author of *Beyond the Boundaries: the Human and Natural Communities of the Greater Grand Canyon* (Grand Canyon Trust, 1997), and co-editor of the Colorado College *State of the Rockies Report Cards*.

Patrick Hughes is an Expedition Assistant for the 2013-2014 State of the Rockies Project. An east coast native, he grew up in Connecticut and graduated from Colorado College in 2013 majoring in environmental science. Pat has held a variety of jobs from positions at UBS Financial to a farm apprentice at The Hickories: A CSA Farm. With a passion for environmental issues, Pat came out to the West to experience the outdoors on a larger scale. He has extensive backpacking experience but some of his other hobbies include climbing, fly-fishing, skiing, and reading.

Halsey Landon is an Expedition Assistant for the 2013-2014 State of the Rockies Project. He hails from Norwell, Massachusetts and graduated from Colorado College in 2013 with a degree in environmental policy. He grew up an avid skier and backpacker and moved to Colorado in 2009 where he has expanded on his outdoor interests, particularly backcountry skiing. He has worked for several environmental policy organizations and an oyster farm on the Massachusetts coast. Halsey joined the Project's expedition crew to follow his love for the outdoors and to pursue work in land and natural resource management. Some of Halsey's interests include skiing, fishing, mountain biking, and photography.

Zak Podmore is an Expedition Manager for the 2013-2014 State of the Rockies Project. He grew up in Glenwood Springs, Colorado, where he came to appreciate the waters of the Rocky Mountains over the course of a childhood shaped by winters skiing on mountain slopes and summers floating through the arid sandstone canyons of the San Juan, Dolores, Green, and Colorado Rivers. A long-time kayaker and rafter, Zak's love of wilderness rivers has taken him to Mexico, Canada, Ecuador, and throughout the American West. He graduated from CC in May of 2011 with a degree in philosophy and a minor in psychoanalysis. Zak returns to the Project's expedition crew after leading the previous Source to Sea, and Down the Colorado Expeditions.

Breton Schwarzenbach is a Student Researcher for the 2013-2014 State of the Rockies Project. He hails from Putney, Vermont, and will graduate from Colorado College in 2014 with a major in political science and a minor in fine arts. Breton is a passionate photographer and journalist interested in understanding human-land relationships. In 2012 he received the Edith Kinney Gaylord Prize in Asian Studies to shoot a story on the livelihoods of nomadic herders living along the Indo-Tibetan border in Ladakh, India. Prior to his time at CC, he developed a strong appreciation for land use and stewardship through farming and maple sugaring in Vermont. He is an avid fly-fisherman and enjoys exploring Colorado's rivers and mountains. His photography can be viewed at: www.bretonschwarzenbach.com.



David Spiegel is an Expedition Manager for the 2013-2014 State of the Rockies Project. He grew up in Woodinville, Washington and graduated from Colorado College in 2012 with a degree in international political economy. David grew up in a family of river runners and experienced the rivers of the west coast from a young age. David was an Expedition Assistant for the Project's 2012 Down the Colorado Expedition and again joins the 2013-14 Rockies Project to lead the expedition team, hoping to utilize his passion for photography and social media to share conservation issues with communities throughout the Rocky Mountain West.

Alex Suber is the State of the Rockies videographer and a member of the Colorado College class of 2015. He was born and raised in the hills of Northern California and later moved to Highland Park, Illinois. This past summer Alex interned for Bitter Jester Creative, a documentary film company, while also working on his own documentary. Alex has no idea what he will major in, but has a strong passion for environmentalism and cinematography. These two interests have led him to become involved with State of the Rockies. When he's not making a movie, Alex enjoys playing the banjo, hiking, and working at the farm.

Stephen G. Weaver is an award-winning photographer with over 30 years experience making images of the natural world and serves as technical director for the Colorado College geology department. Educated as a geologist, Steve combines his scientific knowledge with his photographic abilities to produce stunning images that illustrate the structure and composition of the earth and its natural systems. As an undergraduate geology student, he first visited the Rocky Mountains where he fell in love with the mountain environment and the grand landscapes of the West. Steve currently photographs throughout North America with a major emphasis on mountain and desert environments. His use of a 3x5 large format view camera allows him to capture images with amazing clarity and depth.

Samuel Williams is a 2013-2014 Student Researcher for the Rockies Project from Simsbury, Connecticut. Drawn into environmental issues by his love of the outdoors, he is set to complete an environmental policy major at Colorado College in the spring of 2014. With this major, and the opportunity presented by State of the Rockies, he looks forward to gaining deeper insights into the state of conservation in the Rocky Mountain West. He spends his spare time backcountry skiing, climbing, slack-lining, and practicing yoga.

The Colorado College State of the Rockies Project

Students Researching, Reporting, and Engaging:

The Colorado College *State of the Rockies Report Card*, published annually since 2004, is the culmination of research and writing by a team of Colorado College student researchers. Each year a new team of students studies critical issues affecting the Rockies region of Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming.

Colorado College, a liberal arts college of national distinction, is indelibly linked to the Rockies. Through its Block Plan, students take one course at a time, and explore the Rockies and Southwest as classes embark in extended field study. Their sense of "place" runs deep, as they ford streams and explore acequias to study the cultural, environmental, and economic issues of water; as they camp in the Rocky Mountains to understand its geology; as they visit the West's oil fields to learn about energy concerns and hike through forests to experience the biology of pest-ridden trees and changing owl populations. CC encourages a spirit of intellectual adventure, critical thinking, and hands-on learning, where education and life intertwine.

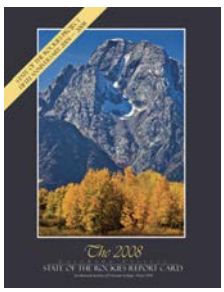
The Colorado College State of the Rockies Project dovetails perfectly with that philosophy, providing research opportunities for CC students and a means for the college to "give back" to the region in a meaningful way. The *Report Card* fosters a sense of citizenship for Colorado College graduates and the broader regional community.

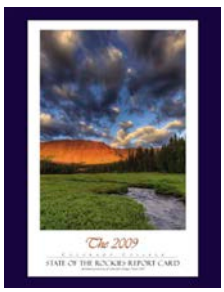
Research
During summer field work, the student researchers pack into a van and cover thousands of miles of the Rocky Mountain West as they study the landscape, interview stakeholders, and challenge assumptions. Back on campus, they mine data, crunch numbers, and analyze information.

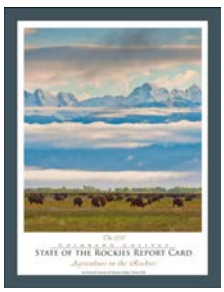
Report
Working collaboratively with faculty, the student researchers write their reports, create charts and graphics, and work with editors to fine-tune each *Report Card* section. Their reports are subjected to external review before final publication.

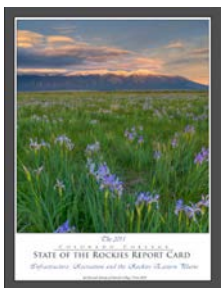
Engage
Through a companion lecture series on campus, the naming of a Champion of the Rockies, and the annual State of the Rockies Conference, citizens and experts meet to discuss the future of our region.

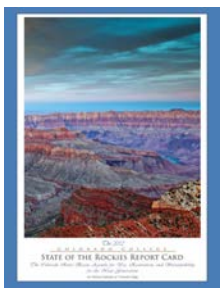
Each *Report Card* has great impact: Media coverage of *Report Cards* has reached millions of readers, and the 2006 report section on climate change was included in a brief presented to the U.S. Supreme Court. Government leaders, scientists, ranchers, environmentalists, sociologists, journalists, and concerned citizens refer to the Colorado College *State of the Rockies Report Card* to understand the most pressing issues affecting the growing Rockies region.

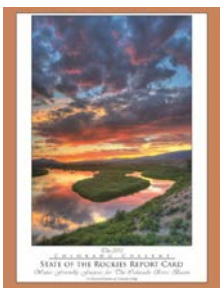












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14 E. Cache La Poudre St.
Colorado Springs, CO 80903
Rockies@coloradocollege.edu (719) 227-8145

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