

CROWN  
of the  
CONTINENT  
and the  
GREATER  
YELLOWSTONE

UNIVERSITY OF  
**MONTANA**

2014, Issue I

# CROWN of the CONTINENT and the GREATER YELLOWSTONE

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Cover photo: Ear Mountain on the Rocky Mountain Front. John Lambing

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UNIVERSITY OF  
**MONTANA**

THE UNIVERSITY  
OF MONTANA  
**PRESS**

MESSAGE  
FROM THE  
PRESIDENT

In 2008, the University of Montana launched the Crown of the Continent Initiative, a multi-faceted program designed to offer on-campus instruction and introduce to the public some of the important educational research and scholarship carried out by UM faculty, staff, students and contributing partners in this ecosystem. Via E-magazines, courses, and public presentations, our goal is to share that work—in the form of stories, photographs, essays, and research reports—focused on the region’s colorful past and exciting present, by describing and highlighting the majestic, yet dynamic and fragile geography, as well as the people, flora, and fauna that inhabit one of the most intact, diverse, and pristine ecosystems in North America. From the many comments we have received and heard since 2008, it is clear that people are interested in learning and seeing what we, and our collaborating partners, are doing in this important corner of the world.

With the Crown of the Continent Initiative now in place and thriving, UM has been increasing its long-standing interest, presence, and activity in the Greater Yellowstone ecosystem where our faculty and students, often in partnership with other scientists, students, agencies, and organizations, have studied and worked for many years. This past spring, 2013, we introduced to our readers the addition of the Greater Yellowstone to our previous Crown initiative by publishing an issue of the E-magazine dedicated exclusively to the GY. Separated by roughly 100 miles, it made sense to combine our work in both ecosystems into one initiative.

This issue—the first *UM Crown of the Continent and Greater Yellowstone E-magazine*—represents the presentation in one journal of all that is part of these two iconic natural areas that total 33 million acres of wilderness, national parks, wildlife refuges, forests, and human habitat. Together, these ecosystems are located in two Canadian provinces (British Columbia, Alberta) and three US states (Montana, Wyoming, Idaho).

Going forward, three times a year, through this E-magazine, we, along with our many partners, will share with you some of the magic that creates and sustains this incredible stretch of geography. We invite you to join us in our exciting, expanded explorations of the Crown and Greater Yellowstone. Welcome!

Royce C. Engstrom  
President  
University of Montana

ROYCE AND MARY  
ENGSTROM



MESSAGE  
FROM THE  
PROVOST

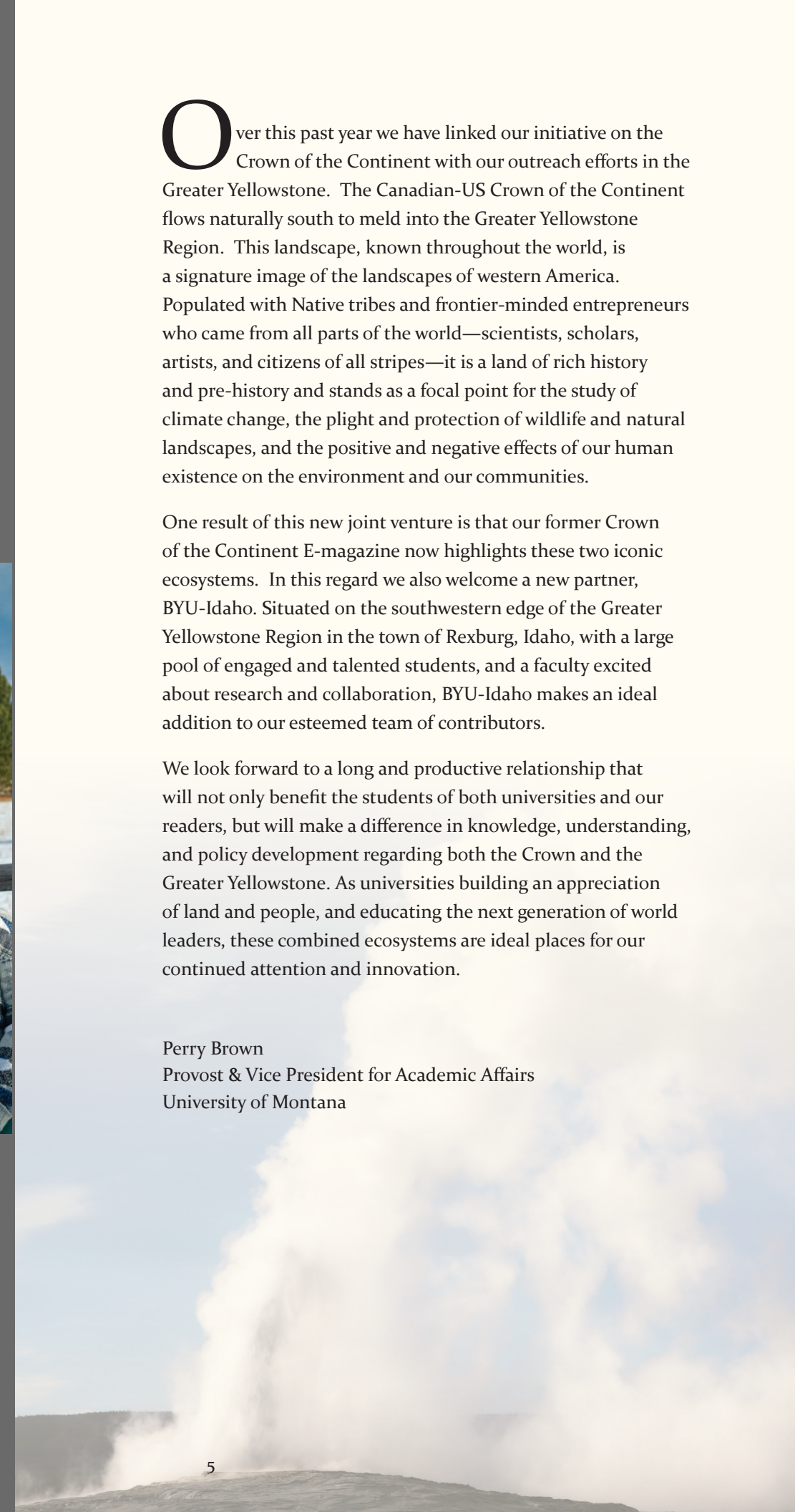
Over this past year we have linked our initiative on the Crown of the Continent with our outreach efforts in the Greater Yellowstone. The Canadian-US Crown of the Continent flows naturally south to meld into the Greater Yellowstone Region. This landscape, known throughout the world, is a signature image of the landscapes of western America. Populated with Native tribes and frontier-minded entrepreneurs who came from all parts of the world—scientists, scholars, artists, and citizens of all stripes—it is a land of rich history and pre-history and stands as a focal point for the study of climate change, the plight and protection of wildlife and natural landscapes, and the positive and negative effects of our human existence on the environment and our communities.

One result of this new joint venture is that our former Crown of the Continent E-magazine now highlights these two iconic ecosystems. In this regard we also welcome a new partner, BYU-Idaho. Situated on the southwestern edge of the Greater Yellowstone Region in the town of Rexburg, Idaho, with a large pool of engaged and talented students, and a faculty excited about research and collaboration, BYU-Idaho makes an ideal addition to our esteemed team of contributors.

We look forward to a long and productive relationship that will not only benefit the students of both universities and our readers, but will make a difference in knowledge, understanding, and policy development regarding both the Crown and the Greater Yellowstone. As universities building an appreciation of land and people, and educating the next generation of world leaders, these combined ecosystems are ideal places for our continued attention and innovation.

Perry Brown  
Provost & Vice President for Academic Affairs  
University of Montana

PERRY AND SHIRLEY  
BROWN



# CROWN of the CONTINENT

The Flathead River below Polson.  
John Lambing



# QUESTIONS, BUT NO ANSWERS YET...

## Studying Icons in a Perilous Land – Glacier's Goats

By Joel Berger

Imagine being alone and lost in one of the seriously dangerous townships of Durban, South Africa, or being pulled out to sea in a treacherous riptide. Farfetched? Perhaps. Most certainly, such 'what if' scenarios are far from the comfort of our Rocky Mountains. Yet, our human response to potential peril shares striking similarities to those of our mammal relatives, including some in the alpine zones of the Crown of the Continent. We humans generally avoid dangerous places when possible. When we cannot, we adopt other tactics to bolster our safety.

We move about in groups, associate with neighbors, and we might even opt to stay in at night, remaining closer to home rather than venturing far. Animals, too, seem to have such defenses.

Ecological pressures have formed the lifestyles of all living species. Locating food, finding shelter and safety, as well as uniting with mates, is the surest way to survive. When these tasks are not successfully accomplished, outcomes are simple—attrition of the population until viability is no longer possible.

Mountain goats in the Crown of the Continent have been around for millennia. As logic might dictate, goats must therefore be good at the game of persistence. After all, they have deterred predators, found food, and located shelter and mates. But, such has not always been the case: extinctions have occurred. A few thousand years ago and at a time well before modern hunting drove many contemporary goat populations into downward spirals, goats in Utah and Wyoming died out on their own accord.

Follow the leader.  
Joel Berger

Modern history reveals that Glacier National Park is being de-glaciated at an unprecedented rate—about 85% of the Park's glaciers have disappeared since 1910. We know virtually nothing about how this will affect the persistence of goats. While the current native range of mountain goats in the 48 continental states is only parts of Washington, Idaho, and Montana, we in the Crown are fortunate, as this is their native stronghold.

What we know about these sure-footed animals and how they are affected by human actions, whether deliberate or not, remains patchy and far from complete. However, this is not due to a lack of interest. Goats remain one of the least studied hooved mammals in North America because of logistics and expense. Goats grow very slowly and so, unlike with deer, puberty can be at 3, 4 or 5 years. And, unlike deer or sheep that often produce young annually, for goats, such a level of fertility is highly unusual. In other words, even if the survival of juvenile goats were good, overall population growth rates would be slow compared to many other wild animals.

Goats are welcoming beacons to visitors of high alpine zones. For those of us who enjoy meadow and craggy habitats there is no smoother access for the spectacular than that afforded by Glacier's Going-to-the-Sun Highway. While this is a blessing for the many travelers who yearn to see these Pleistocene survivors, it is not necessarily a blessing for the goats. Roads bring noise, pollution, Twinkies and dripping toxicants from overheated vehicles to parking lots.

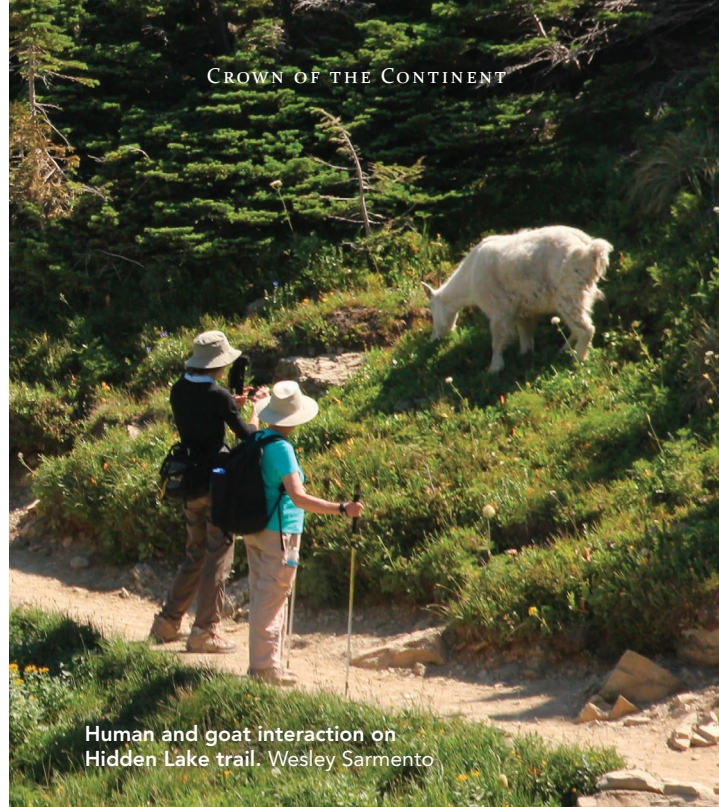
Based on studies in other parks, we do know that hooved mammals (ungulates) experience mixed impacts from our human presence. While some avoid roads, many die or are injured by collisions with cars. During a 10-year period at Grand Teton National Park in the Greater Yellowstone Ecosystem, pregnant moose progressively clustered nearer to roads to give birth. The behavior of non-pregnant females reflected no similar adjustments. On average, each year, mothers gave birth about 120 meters (394 feet) closer to the roads, a value that may not seem like much until one realizes that over a decade this equated to a one-kilometer (over ½ mile) shift toward highways. The reason? Grizzly bears, which are known to be predators of moose calves, tend to avoid roads. In this case, maternal moose used roads as a means to buffer against the threat of predation by bears.

In Glacier, with some 400 visitors per hour at peak summer periods, goats are exposed to hordes of people. Why goats remain in this area is the topic of research by Wesley Sarmiento, an aspiring graduate student in my laboratory at the University of Montana. With generous support by the National Park Service, in part to understand road effects on wildlife, and with additional help from the Montana Fish, Wildlife, and Parks Department and the Bozeman offices of the New York-based Wildlife Conservation Society, Wesley and I are trying to unravel different equations as to why goats particularly choose to use Logan Pass so heavily.

King of the mountaintop.  
Claire Dal Nogare

Perhaps the food in the area is of extraordinary quality and far surpasses that of elsewhere. Maybe the meadows are more extensive and have yet to suffer loss due to encroachment by trees—a situation brought on by warming temperatures in the northern Rocky Mountains. It may be that the cliff habitats offer better safety and, possibly, there are few predators in the area. Or, it may be just like the moose mothers of

the Tetons who steered closer to roads due to an offering of safety provided by vehicles, perhaps goats of the Logan Pass region use the heavily traversed region and adjacent Highline Trail for the protection the crowds afford. In trying to understand the answer to this and other questions, we have joined forces with Mark Biel, a National Park Service biologist and his colleagues. Our methods are simple and rely on both technology and good old fashioned fieldwork. Some goats have been fitted with satellite collars so we can monitor precise movements by time and by space. Our interest is focused on how goats navigate roads and people. We're also curious if the same goats are consistent users of the Logan Pass region every year or whether there is a more general flow of individuals passing through and moving on to other areas. We're trying to determine whether it is a general trait for most goats to approach



Human and goat interaction on Hidden Lake trail. Wesley Sarmento

Based on studies in other parks, we do know that hoofed mammals (ungulates) experience mixed impacts from our human presence.

humans or, instead, just a few individuals who become more habituated than others. To get a better handle on these issues, we need “control” goats—those that see people far less frequently.

In addition to learning and documenting the behaviors of collared goats, we are developing in-depth profiles of known females to determine who is pregnant, who produces babies, and

how well these young survive winters. By understanding adult and juvenile survival we can begin to develop a population model that will help us establish whether the goat community at Glacier is growing, stagnant, or declining. Not only do we believe our work is going to produce a deeper sense of how roads and people affect this mountain monarch, but we contend our data collection will offer a foundation to address questions about how climate alterations may be affecting this icon of the Crown of the Continent.

*Joel Berger is the John J. Craighead Chair of Wildlife Conservation at the University of Montana. Dr. Berger received the prestigious Leopold Award in 2013, which is given to well-established individuals who have made lasting contributions to the conservation of mammals and their habitats.*

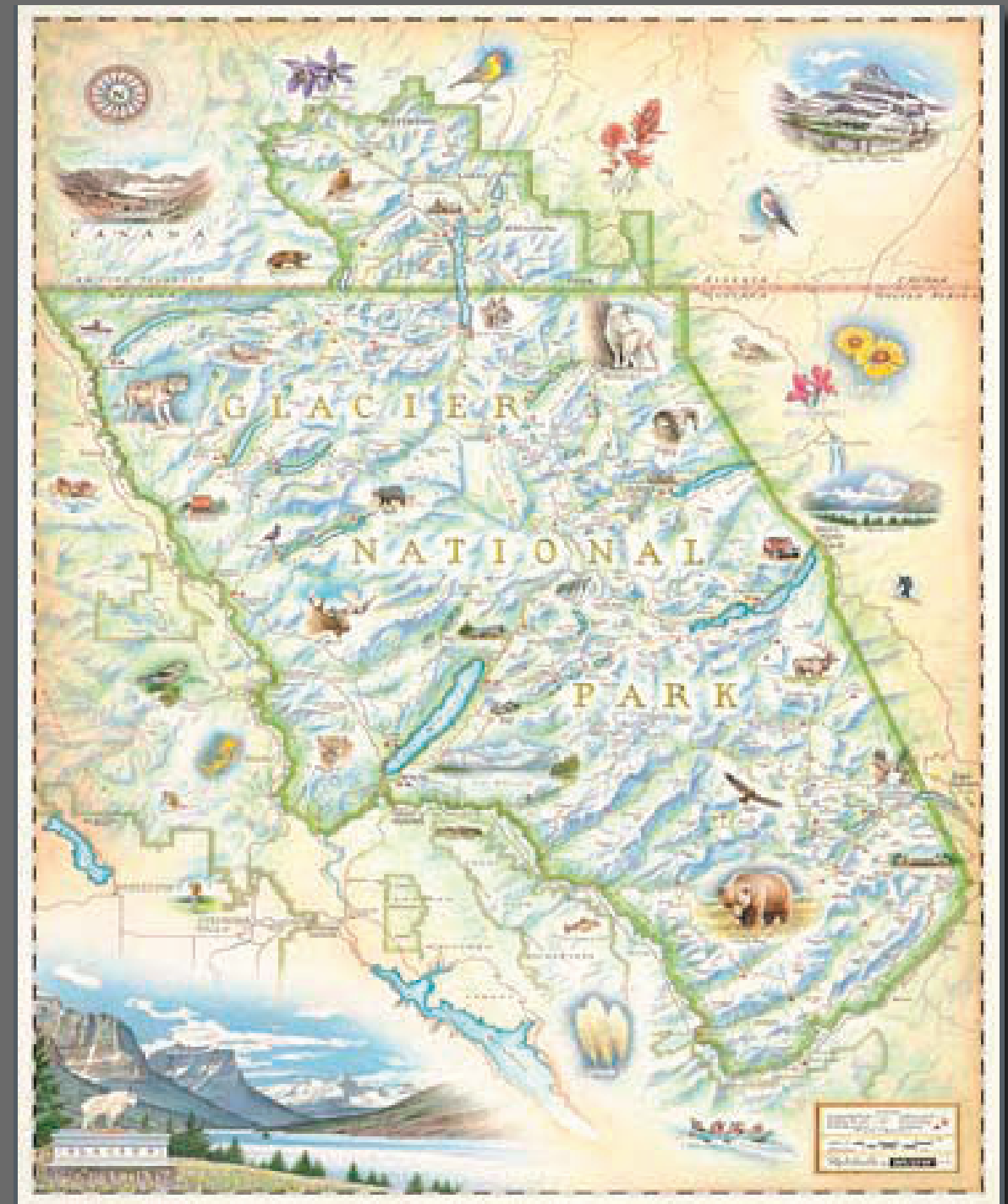


Goat kids. Will Klaczynski



# Hand Drawn History

Beautifully detailed, hand-illustrated map of Glacier National Park, printed on heavy paper and suitable for framing.



Through arrangements with Xplorer Maps, our readers can purchase this map directly. The Crown of the Continent and Greater Yellowstone Initiative will receive a generous donation for each map sold.

Price: \$30 including postage. Size 22" x 31" – arrives in a mailing tube

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## Measuring Success with words

By Steve Thompson

A fourth-generation Montanan wields a mean crosscut saw to maintain old trails in the Bob Marshall Wilderness. A young couple returns to their agricultural roots to start an organic farm along the Rocky Mountain Front. A coalition of small communities has joined together to create a safe biking trail to Glacier National Park. A group of Blackfeet women defend the sacred waters of their homeland. And tree huggers lay out timber sales next to loggers who go to bat for wilderness.

These are just a few of the stories featured on [www.ConserveMontana.org](http://www.ConserveMontana.org), which was launched in 2012 by the Cinnabar Foundation's—Montana's Conservation Fund. Residents all across the state relate how and why they are joining with their neighbors and putting Montana's conservation values to work by protecting the amazing natural gifts we all have inherited.

Since 1985, the Cinnabar Foundation has aided dozens of groups and projects in the Crown of the Continent and Greater Yellowstone, donating millions of dollars to support the protection of environmental resources and healthy communities. Conservationists often use facts and figures to share their successes on the ground. Acres protected, miles of trail, grizzly bear population trends, stream riparian segments restored, acre-feet of water left in the river for native fish to survive... all good and necessary, but sometimes it seems rather impersonal and abstract. Just what is the human aspect behind those successes? That's what we set out to discover.

We have been blessed with this spectacular natural heritage not by accident, but thanks to the dedication of many who came before us. Today, however, a new generation is working to sustain Montana's rural character, the clean water, abundant wildlife, unspoiled public lands, and wide-open spaces that define us, creating legacies that will be inherited by future generations

*and this is one of those stories...*



## LOST and Found

Prairie potholes, Badger-Two Medicine area.  
Rick and Susie Graetz

By Lou Bruno

I grew up in New York City adjacent to a small remnant salt marsh. My father was a cold, stern man, and I had few friends. Early on I learned that the marsh held a different world than mine, one where I was welcomed and accepted. Slowly it gave up its secrets, and I grew aware of the richness of life residing there. The marsh became my greatest friend and inspiration. Evenings after school I watched the sun go down behind it, my imagination joining the endless V's of flying ducks crossing the flaming skies on their way out to feed.

Then I came home from college to bulldozers lined up at the marsh's edge. In the space of a few days they completely destroyed that world I'd known so intimately. I lost my greatest friend. My dad said that it didn't

matter, that soon I'd be driving, and could go to other wild places. He didn't understand, and his words didn't ease the loss. I vowed then to find a home where the wildness wouldn't be consumed by industry.

I thought I'd found that place in Montana.

A few years later, I would again face losing a place I loved. This time it was Montana's Badger-Two Medicine wildland, or simply "the Badger."

On a chilly-November day in 1984, an acquaintance knocked on my door and asked to use the phone. There was to be a public meeting that night about a proposed exploratory oil well in a wild piece of country just southwest of my place. She was calling people



Looking into the Badger-Two Medicine wildland. Tony Bynum

and urging them to attend the meeting. I volunteered to come along. Little did I know then, the Forest Service scoping meeting on drilling in the Badger-Two Med would thrust me head first into a wilderness fray that was raging across the state. Forest Service representatives at the meeting, (all now retired), were less than honest with us about their interest in the Badger's resources. I'd always assumed that the officials responsibly managed our lands in the public's interest. At that meeting they showed me otherwise. They were working solely for the oil company, while pretending to represent us. I vowed to do something about it. This time the bulldozers wouldn't come without a fight!

Until this point, I'd had absolutely no involvement with

environmental issues. I enjoyed the mountains and woods, but was not aware that I could or should help protect those places. And as for "the Badger," I knew little. I'd hunted grouse in its foothills and fished its streams, but I had never explored its center nor seen it from a high vantage.

Here's the irony. When I moved to East Glacier, I hated it. It felt like Siberian exile: winters were brutal; the mountains were stark; its summer season was so short. Oh sure, I saw its beauty. But this land seemed uninhabitable. All I felt was the physical discomfort of life on the Rocky Mountain Front.

Gradually, though, I came to love the harsh beauty, the

## I realized this was not just about the land. It was also about the people involved with its protection.

wild diversity, the slow awakening of the land in Spring, and the transformation from Arctic wasteland to rich green glory.

That same November, I went to my first Montana Wilderness Association (MWA) Convention, intent on fighting this oil threat, but without a clue as how to proceed. On the second day, Art and Elaine Sedlack and Chuck Jonkel showed up and introduced me to the people who could help.

Folks listened and embraced the issue. I felt magically transported to a wholly different planet, one where everyone shared my values! Wonderful people were there: Doris Milner and Bill Bishop; the Sargents; Jim Posewitz; Arlo Skari; Loren Kreck; Don Marble; Bill Cunningham; Liz Smith; Arnold Bolle; Elaine Snyder; Ed Madej; Smoke Elser; Cecil Garland; John Frederick; and on and on!

I realized this was not just about the land. It was also about the people involved with its protection. So, encouraged by that experience, a ragtag group of local volunteers who didn't know squat about wildlands advocacy formed a grass roots group, the "Glacier-Two Medicine Alliance."

Feeling the land might speak best for itself, we led many wilderness walks into the Badger. And if people personally experienced the priceless beauty of the Badger, maybe they would come to its aid. We were right! Congressman Pat Williams later told us that the Badger had received more letters of advocacy than all other areas during Congressional deliberations over statewide Wilderness. Best of all, we won all our appeals concerning oil development in the Badger.

I had an epiphany the summer after our group formed. Leslie Shaw took me by horseback to the center of the

Badger. We started at Marias Pass and worked our way up the Two Medicine drainage to its headwaters. As we crested the divide between the Two Medicine and Badger creeks, we broke into a big meadow and stopped to rest the horses and look over the scenery. Morningstar and Goat mountains loomed behind as I had my first glimpse of the Badger Valley. An eerie feeling came over me. I felt a presence and was moved to tears. I now know what it was... the spirit of the Blackfeet ancestors. They needed my help. I wouldn't let them down.

For almost 30 years, the energies of the Glacier-Two Medicine Alliance ebbed and flowed. With a more conservation-friendly administration, immediate threats to the Badger eased and we slipped into inactivity. But new assaults call us back. The roars of ATVs and the grind of hydraulic fracturing remind us that the Badger will never be safe as long as it remains unprotected.

There is new hope on the horizon. The Alliance continues with an energetic new guard of leaders, (and some old tired ones, too!). We are forging many new allies amongst the Blackfeet and conservation communities. After years of dealing with threats to this awesome Badger-Two Medicine country, I am excited about the new blood coming to the Badger's aid. I know that in the end we will win and give the wild Badger-Two Medicine the permanent protection it deserves."

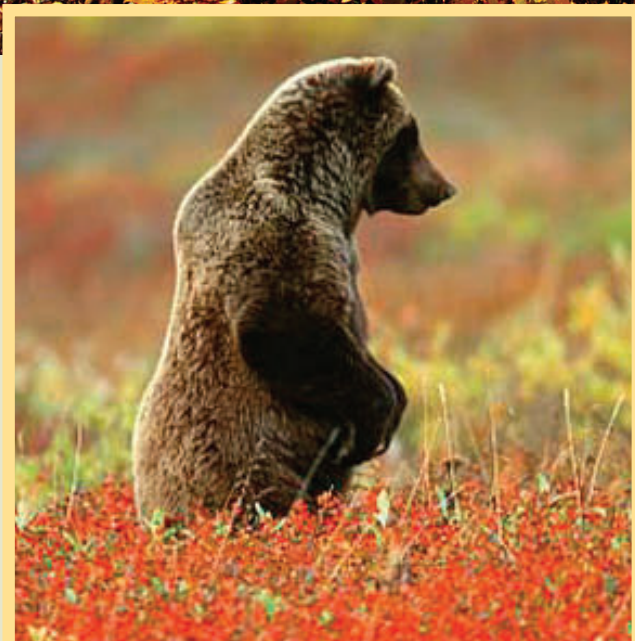
*Lou Bruno is an ecologist, naturalist, teacher, expert birder and an activist. He is a past president of the Montana Wilderness Association and the founder of the Glacier-Two Medicine Alliance. Lou lives on the eastern boundary of Glacier Park and part time in Missoula.*





# Healthy Fens

**A faculty-mentored, student research project in the UM Geography Department, which resulted in a new collaboration with the USFS**



free-pictur.net

By Joseph Milbrath,  
Anna E. Klene, and  
J. Stephen Shelly

## INTRODUCTION

The Rocky Mountain Front is home to a drastic change in relief where the northern Great Plains abruptly intersect the east face of the Rocky Mountains. Along this gradient, rich fens (groundwater-dependent peatlands) act as corridors for wildlife to travel back and forth from the mountains to the prairies, and as preserves, which harbor locally rare species. The fens along the Rocky Mountain Front (RMF) are relatively understudied, with the exception of Pine Butte Fen, which is known to support one of the most diverse wetland floras in the state of Montana. This project seeks to improve our understanding of the spatial response fens have had to make in the face of recent impacts so that we might better anticipate their reaction to future challenges. Analysis of historical aerial photographs and GIS data allow us to measure the spatial changes in vegetation within these fens since the 1930s.

Pine Butte Fen. Dave Hanna

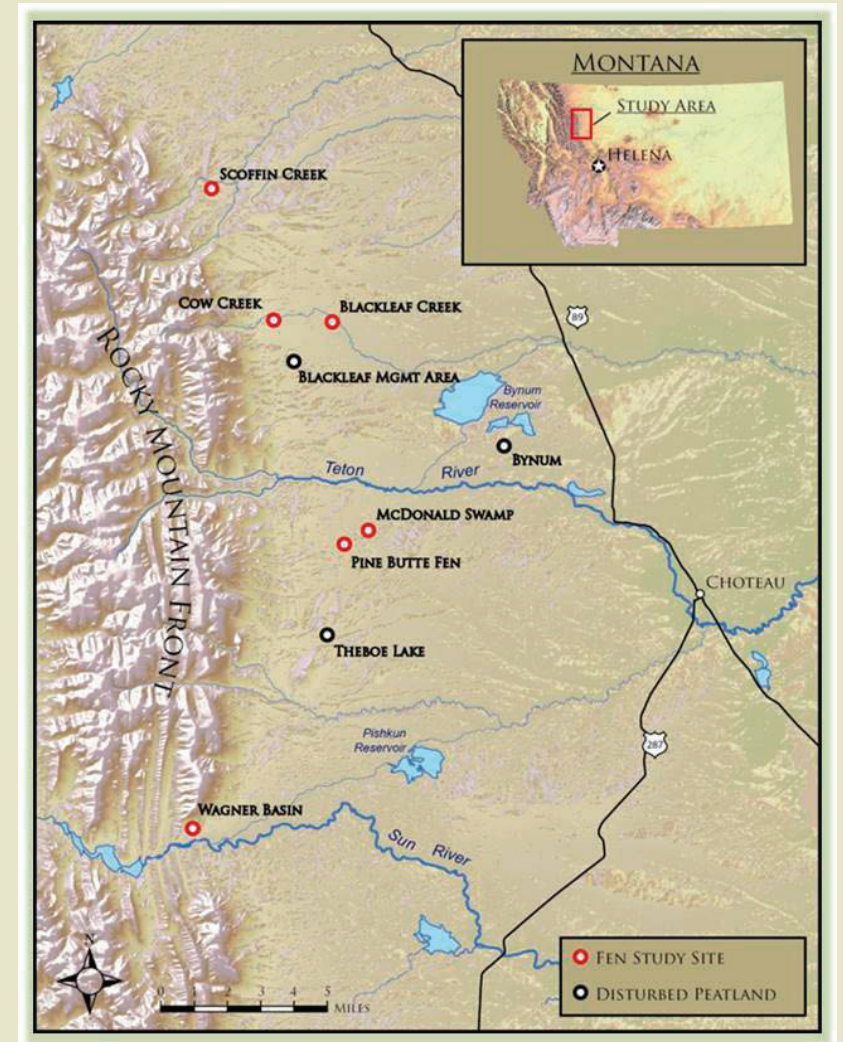
## STUDY AREA

The RMF represents a narrow zone of transition between the rugged northern Rocky Mountains and the extensive grasslands of the Great Plains, which is largely controlled by a 4,921-ft drop in elevation over just a few miles (Figure 1). Climatic gradients correlate to elevation with average annual precipitation increasing from 11 in on the plains to 118 in among the highest mountain peaks, and with average minimum temperatures dropping from 32 to 17.6°F over the same distance. The climate of the Front is continental, with cold winters well below 0°F and warm summers with means above 80°F. Due to its low humidity and prolonged dry periods, this harsh climate associated with the edge of the RMF may limit peatland development to areas with groundwater discharge.

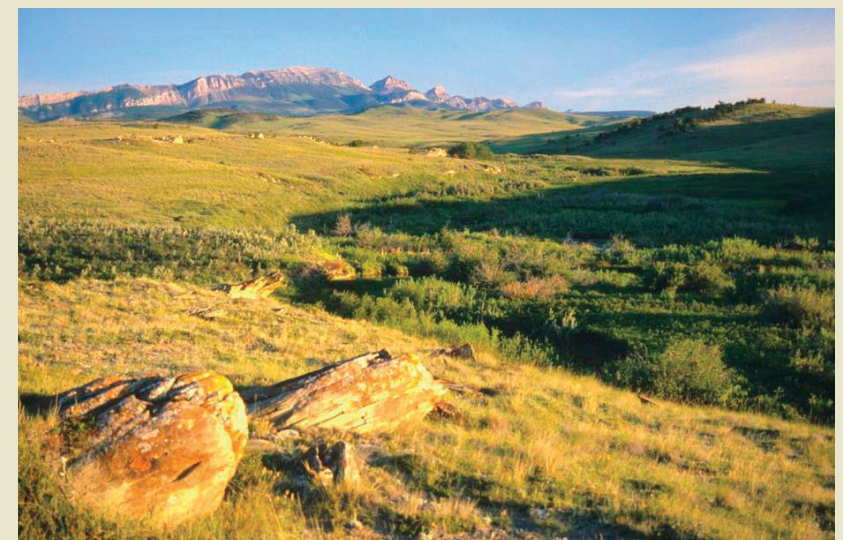
Pine Butte, a 1,112-ac, largely undisturbed, patterned fen is the most documented fen in the RMF. It is owned by The Nature Conservancy and situated within the Pine Butte Swamp Preserve, an 18,000-ac refuge that was dedicated in 1979 for protection of the federally endangered grizzly bear (*Ursus arctos*). The fen is home to 93 species of vascular plants, including seven of which are considered to be “at risk.”

The vegetation of Pine Butte Fen is organized into three distinct communities—open fen, dwarf-carr, and carr (a peatland with shrubs). However, due to limitations of the aerial imagery, this project analyzed the areas as open fen and combined dwarf-carr and carr into “woody vegetation.”

Along with Pine Butte, five other sites representing the variety of characteristics of fens along the RMF were fully evaluated. These sites include a range of sizes and patterning, and had relatively little alteration as a result of anthropogenic (human) activities. The remaining three study sites could not be fully evaluated due to either incomplete datasets or because disturbance limited the mapping that could be done.



**Figure 1.** Map of the study area showing the nine known fens along the RMF, including the six fen sites for which aerial photos were available for the entire study period and a full analysis could be done and three disturbed sites which had either missing photos or were too disturbed to fully analyze.



**METHODS**

Aerial photographs were acquired from three sources. The Montana Natural Resource Information System provided digital photos from 2009 that were used as base images for earlier photo corrections.

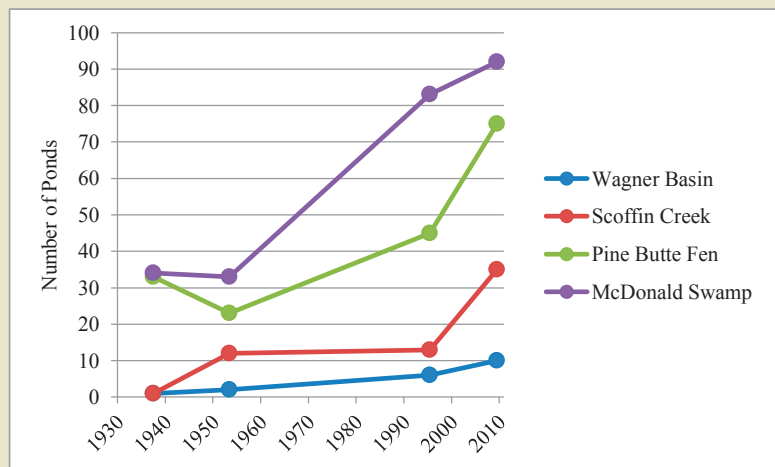
Black and white aerial photographs from the National Archive dated from 1937 to 1941; and the USGS EarthExplorer archive supplied aerial images from the 1950s, 1970s, and 1995.

Prior to analysis, images taken before 1995 were orthorectified (orthorectification of aerial images removes terrain distortions to create a flat-earth, map-like version of the photo. It is done to correct distortions caused by the geometry between the camera on board the plane and the Earth's surface). Road intersections, building corners, bridges, dams, and boulders were used to match images, with emphasis around the perimeter of each peatland study site.

Once images were orthorectified, total "wetland area" was digitized following distinct boundaries between saturated wetlands and dry grassland. Ponds were traced following darker reflectances compared to the rest of the areas within the wetland. Expanses of open fen and woody vegetation such as shrubs and timber within the wetland were digitized mainly from texture differences following criteria developed from studies in the region.

**RESULTS & CONCLUSIONS**

Mapping the peatlands of the RMF provides a unique spatial perspective into the dynamic processes of these isolated ecosystems. While a variety of factors have impacted each peatland, several themes are clear. While climate change may be impacting these fens, over the study period, their spatial extent (size) remained remarkably stable. The main factors, which were observed spatially, all involved anthropogenic factors, in particular, beaver abundance and land-use management.



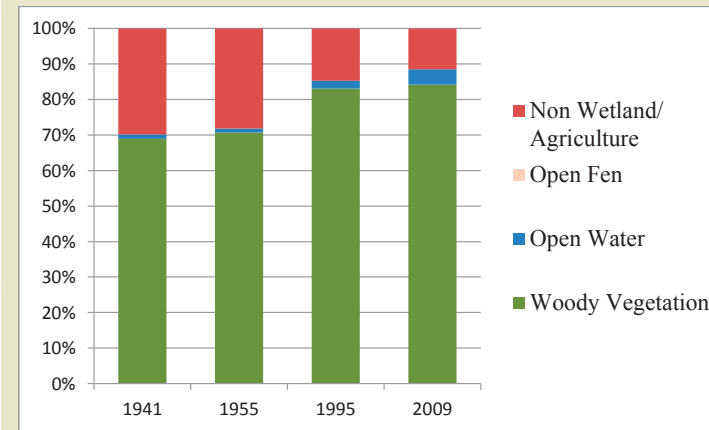
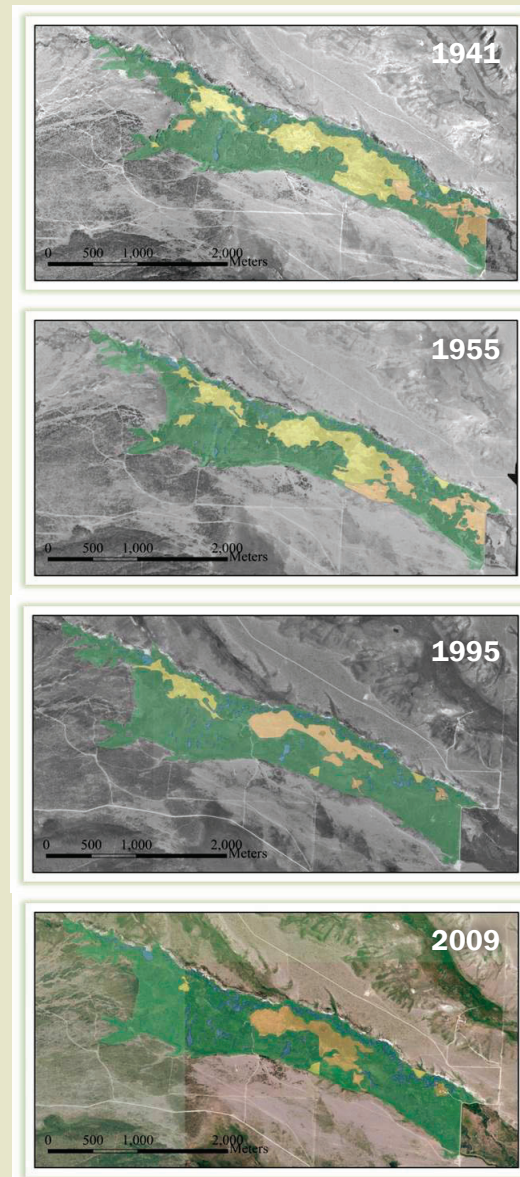
**Figure 3.** Graph showing the change in the number of ponds at which beaver re-colonization was observed.

Beavers have been known to exert a significant influence on peatlands and, in the early 1900s, the prevalence of beaver trapping in this region, as elsewhere, had led to a dramatic drop in the animal's populations. As beaver numbers rebounded in the RMF, their activities produced an increase in the amount of open water and quantity of ponds at Pine Butte Fen and several other peatlands (Figure 3).

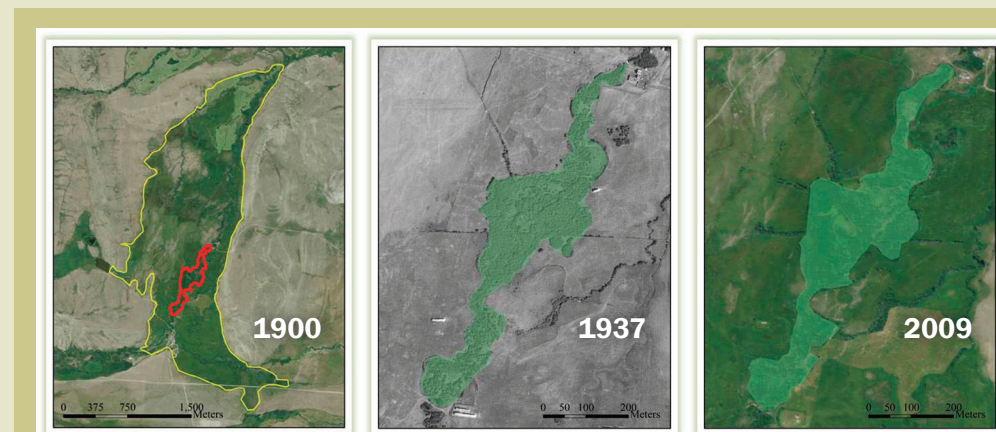
Changes in conservation management have impacted the RMF especially since the late 1970s. Increasingly, The Nature Conservancy and other groups have used conservation easements to protect the fens, and this has led to the total percentage of peatland acreage being used for agriculture to decrease from a peak in the mid-1900s of 28% to 15% by 2009. Figure 4 of Blackleaf Creek illustrates this.

Despite declines in the amount of agriculture in recent decades, much of its impacts were prior to the earliest available air photos for this region. While Pine Butte Fen was not heavily disturbed during the early 1900s, two other peatlands (which together would have been as large as Pine Butte Fen) were almost entirely converted to agriculture and are still being used as such: Theboe Lake (Figure 5) and Bynum.

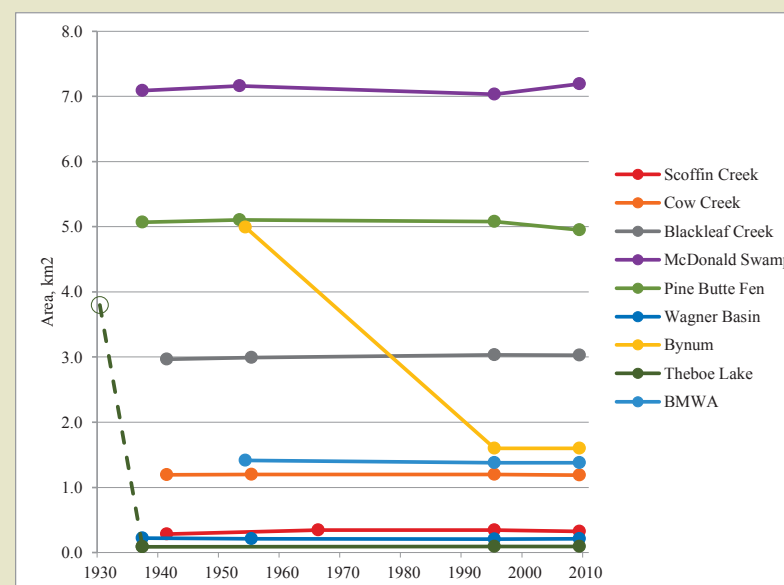
The overall stability of these fens (Figure 6), despite the impacts of various human activities and decisions, is encouraging. But the loss, prior to conservation efforts, underscores the need for continued vigilance to protect these rare ecosystems. Further investigations into the possibility of peatland restoration should be considered.



**Figure 4.** Change in the extent and land-cover types within the Blackleaf Creek wetland complex between a) 1941, b) 1955, c) 1995, d) 2009, and e) a graph showing the relative proportions of each land-cover category.



**Figure 5.** Theboe Lake wetland complex. 1900—yellow boundary defines the estimated wetland area prior to initial cultivation. Red area represents the complex in 2009.



**Figure 6.** Graph showing the spatial change in peatlands along the RMF.

*Anna E. Klene is an Associate Professor in the University of Montana's Geography Department. Her field of study includes arctic and alpine environments, climatology, the cryosphere, geomorphology, modeling, and remote sensing.*

*Joseph Milbrath received his MS degree at UM. He was awarded a scholarship for this research by the MT Assoc. of Geographic Information Professionals and presented his results at the Intermountain GIS Conference..*

*J. Stephen Shelly is the regional botanist for the Forest Service's Northern Region. He has worked in plant conservation biology, floristics of the northern Rocky Mountains and northwestern Great Basin, and natural area identification and protection.*



# IT WASN'T EASY...

## ADVERSARIES CELEBRATE ACCORD ON WHITEFISH RANGE LAND USE PLAN

By Rob Chaney of the *Missoulian*

In the Bible's First Book of Kings, Solomon nearly has to chop a baby in half before two women claiming to be its mother can resolve their dispute.

No swords were pulled at the table where the Whitefish Range Partnership found a way to let loggers, wilderness advocates, snowmobilers, mountain bikers, river rafters and cabin owners share 300,000 acres of the Flathead National Forest. But the roomful of longtime adversaries agreed having a Solomonic deadline actually helped them build the trust to share the land.

Nov. 19, 2013, partnership members shared chili and champagne as they presented Flathead Forest Supervisor Chip Weber with their final agreement. Thirteen months in the making, the deal could help the US Forest Service settle even bigger debates across the Rocky Mountains.

"We were concerned the thing might leave the tracks and never get on again," said Bob Brown, a retired Whitefish legislator and Montana secretary of state who chaired the partnership. "But people recognized the area was large enough to accommodate everyone's use and avoid those baby-splitting situations. If they gave up something in one place, they gained even more in another. When people put aside those ideologies, when they can get past that, they're surprised how many things they can agree on."



**NO SWORDS WERE PULLED AT THE TABLE WHERE THE WHITEFISH RANGE PARTNERSHIP FOUND A WAY TO LET LOGGERS, WILDERNESS ADVOCATES, SNOWMOBILERS, MOUNTAIN BIKERS, RIVER RAFTERS AND CABIN OWNERS SHARE 300,000 ACRES OF THE FLATHEAD NATIONAL FOREST.**

Looking into Glacier Park from the Whitefish Range. Rick and Susie Graetz

The proposal covers the Flathead National Forest's portion of the Whitefish Range – the mountains above Columbia Falls and Whitefish. The western boundary follows the Lincoln-Flathead county line. The Canadian border caps the north. The North Fork of the Flathead River and Glacier National Park mark the eastern edge. That's one-seventh of the Flathead's 2.4 million-acre federal territory. It includes the Whitefish Mountain Resort, the Tuchuck inventoried roadless area, uncut timberlands, old forest roads, bike trails, isolated campgrounds and mountaintop lookouts. It has a federal Wild and Scenic River on one side and transboundary wildlife corridors across its northern edge.

On Dec. 5, the Flathead Forest started its own collaborative sessions on its forest plan – a document that guides all uses and activities on the national forest. "Any time a diverse group of folks can get together and come to agreement – if they can resolve all those differences – we're obviously going to give that a lot of consideration when we develop our plan," said Joe Krueger, the Flathead's forest plan revision leader. "What I liked about it was the win-win approach, the solution where everybody benefited. Everybody got something out of this process."

Brown said at the start, he invited Gordy Sanders of Pyramid Mountain Lumber to tell the group about how other collaboratives have worked. Sanders has been a principal in the Blackfoot Challenge, which knit together ranchers, rafters, hunters and loggers in the Blackfoot River drainage

northeast of Missoula. He's also been instrumental in the Southwest Crown of the Continent collaborative, which guides a major Forest Service land-use project in western Montana. "He's a thinker with balanced judgment who can think outside the box," Brown said of Sanders' input. "We realized what had to be established was a trust relationship, and it took several meetings to do that. We also decided to have several meetings without the Forest Service present."

Michael Jamison of the National Parks Conservation Association was one of the partnership participants. He said the group agreed they wanted to see what they could produce as neighbors before the federal agency got involved. "The old way was to wait for the Forest Service to start a planning process, then go in and ask for the world and argue against others getting anything," Jamison said of past planning efforts. "The Forest Service is doomed in that situation. They will create a map that no one likes."

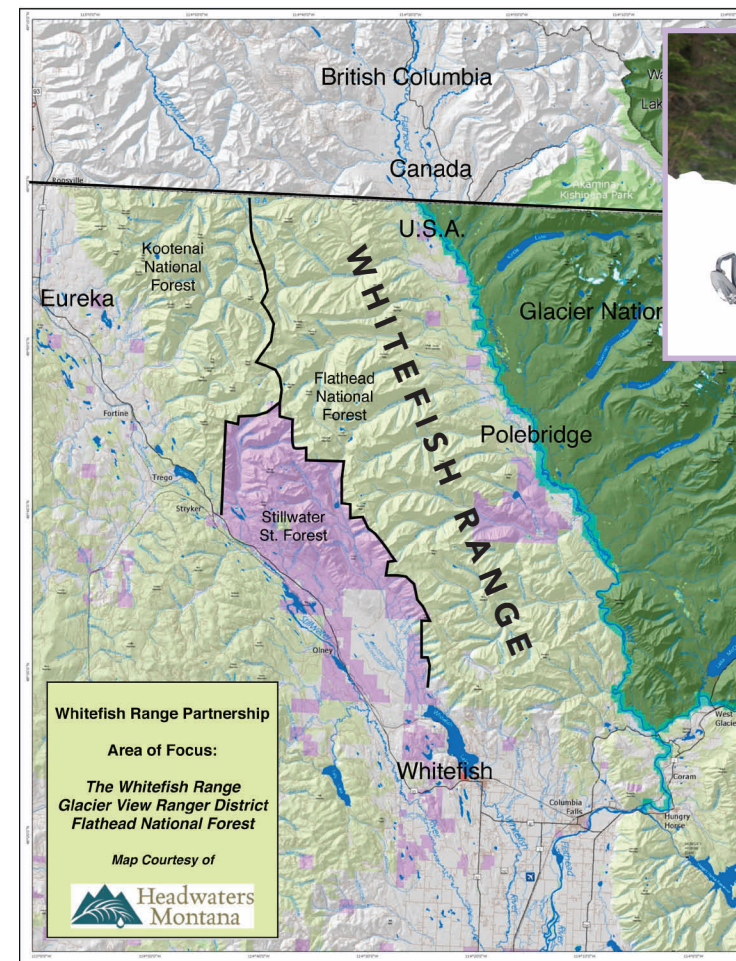
In fact, the Forest Service did have a 2005 map of the Whitefish Range that showed the claw marks of past lawsuits between wilderness supporters and snowmobile clubs, challenged timber sales and ski area expansion plans. It also showed road densities, grizzly bear habitat,

trails, private property and state land. "We went at it more like a zoning process," Jamison said. "Our agreement doesn't say put a trail here to here, or logging unit here and snowmobiles there. It's more like in a city where you say here is for residential, there is for light industrial use. We're saying this should be wilderness, or special interest area, or general forest timber base or roadless backcountry."

The group had several ground rules. The first was that nothing got done without consensus. That way, no one felt outnumbered at the table, since anyone could block progress. To counter that, anyone giving a thumbs-down had to put up a counterproposal to what they didn't like. And no agreement on a small issue was final until the whole package got approved. "If people have the option to just say no and write a minority report, you're offering them an easy out they'll take every time," Jamison said. "There's no incentive to get consensus. And if you got what you wanted in week one, it would be easy to not stick around for the rest of it. But all this stuff is interconnected. To pin down timber later, we might have to re-jigger something we did in snowmobiling. As it was, snowmobiling was both the first and last thing we voted on."



Hikers and horseback riders share the scenery. Dave Hadden



Snowmobile representative Robbie Holman said another crucial factor was dropping the philosophy discussion. After a brief discussion of what people thought about wilderness and the taxpayer and similar beliefs, the group decided to focus on maps. "When we switched horses to how we divvied up the land, that's how it ended up working," Holman said. "Nobody changed minds. But even if you didn't agree with the uses the land was divvied up for, as long as the group you represented got something of value, it ended up being a compromise." For example, snowmobilers have a history of riding in the hills south of Big Creek Road and north of Whitefish. Wilderness advocates have wanted federal protection of the Tuchuck and Mount Thompson-Seton areas near the Canadian border. Neither had established interests on the other end of the map, so they agreed to back each other's use proposals in the final document.

The process started to wobble a couple of times, and nearly derailed toward the end, according to Brown. "The backcountry bicyclists were pretty assertive,"



Snow fun. Bluelemur

Brown recalled. "Part of the problem was they don't like to use the same trails as backcountry horsemen. There was some friction there. "And

bicyclists took a firm position against wilderness, until they realized they're likely never going to use that anyway," Brown added. "So it became, as a practical matter, if we can get wilderness people to cooperate with us outside the wilderness, we can get off their backs on wilderness."

In the final agreement, the bikers gained recognition for their trail-building efforts around Whitefish, as well as their interest in using mountain roads and trails elsewhere. Loggers saw their suitable timber base go from about 55,000 acres to 90,000 acres. Wilderness advocates outlined 85,000 acres they want federally protected. Forest homeowners concerned about having federal wilderness bordering their property borrowed an idea from the Flathead Indian Reservation and proposed a buffer zone that would allow reduced logging or hazardous fuels management around their land before the non-motorized territory began.

All of this remains tentative, as the Forest Service adds it to the public process for its forest plan. The radical fringe of all camps will likely object, but few will have put in the 13 months of Monday nights to present a case as convincing as the Whitefish Range Partnership.

"Reaching that final thumbs-up became pretty important all around the room," Brown said. "I wish the members of Congress would understand that. You can always go along with your most ardent supporters – that's easy to do. But statesmanship requires courage. It's understanding what needs to happen in the long term and saying 'I'll take the chance and explain that to the people who go along with me. They may not understand this now, but they will eventually.' That's statesmanship."

**Rob Chaney** covers the outdoors, environment and science for the Missoulian newspaper.





**KINTLA LAKE — With a can of bear spray on his hip and hearing aids in both ears, Lyle Ruterbories whistles and hums as he tends to this patch of wilderness along the Canadian border.**

For 20 years, he has been the ambassador, manager, accountant, anthropologist, botanist, historian, traffic cop, landscaper, handyman and rules enforcer of Kintla Lake. He still hauls gravel, mends fences and wields a chain saw to clear fallen trees from the road to the most remote encampment a visitor can drive to in Glacier National Park. But he doesn't overdo it. He is, after all, 93 years old.

What's it like, a visitor asks, to be the oldest ranger in Glacier? "Not just in Glacier, the whole park system... the oldest working ranger in the whole park system. That includes everything," Ruterbories said. He once heard about another ranger near his age in Washington, DC. "He was handing out pamphlets," Ruterbories said, with a smile. "Sitting at a desk, handing out pamphlets. Not exactly what I'm doing here, pushing wheelbarrows with gravel in it."

But this story is about more than longevity. It is, in fact, two love stories: One between a man and a woman, which ended sadly and too soon; the other between that man and a beautiful stretch of wilderness, which may be coming to an end as well.

Ruterbories' first career was as a manager at Rocky Flats, a nuclear weapons manufacturing facility back home in Colorado. But starting in 1962, he and his wife, Marge, spent every summer in Glacier. Eventually, they became the hosts at the popular Avalanche Lake campground along Glacier's Going to the Sun Road.

In 1991, new GNP North Fork District Ranger Scott Emmerich needed a host at the Kintla Lake campground, someone who didn't need constant supervision in the isolated area east of the North Fork of the Flathead River. Emmerich was familiar with Ruterbories from his time working in the Avalanche Lake area. And Ruterbories' age

# A RANGER FOR THE AGES

*Lyle Ruterbories -  
The Oldest Ranger in the  
National Park System*

By Matt Volz, Associated Press



Secluded and serene Kintla Lake. Will Klaczynski

— he was then 71 — was not a worry, he could still hike 28 miles in a day.

At first, Lyle and Marge were not easily convinced to leave Avalanche Lake for the remoteness of Kintla. But just two years later, Lyle turned down seven other job offers in Glacier to become Kintla's seasonal ranger so he and his wife could stay there together. For the next 12 summers,

they lived in the little red ranger's cabin on the lake's shore, she as the campground hostess, he as the ranger.

Then, in 2005, Marge died of a stroke. In his grief, Lyle slept through most of the days that followed and could muster little will to do anything else. A grief counselor told him he needed to get back into a routine, and part of that meant going back to Kintla.

That first day back was the worst day of his life, he said. Every step reminded him of Marge. "The reason I come back here, she called this a paradise on earth. She really meant it. When I walk down through these trees, I still remember that," he said. And so his life began again.

To the kayakers and hikers who brave the white-knuckle drive along the narrow gravel road to reach Kintla Lake,

Lyle Ruterbories. NPS



Ruterbories is a star. They go there for the quiet that can be elusive in other Glacier campgrounds during the peak of summer, but often they come back because of Ruterbories. It's an unusual phenomenon in a campground where most people visit for a night or two before moving to some other part of the park.

"Initially, we came here on a kayaking day. Just a kayaking outing," said Ingrid Forsmark, a resident of Whitefish, Montana, and Tok, Alaska, who has been coming to Kintla for the past three years. "I met Lyle, and he was so interesting to talk with, I thought, ooh, I'm going back there."

Campers call to Ruterbories by name as he makes his rounds. Visitors who haven't been to Kintla in a decade greet him like a long-lost uncle.

Pretty much anything can launch him into a story. He can shift easily between observations on a family of loons, the origins of the nickname "Gray Eagle" given him by a Blackfeet Indian cleanup crew and recollections about the time he found a 30,000-year-old fossilized jaw of a two-toed horse in a nearby stream. A simple hello at a campsite can turn into a 45-minute discussion of past bear encounters, near misses with wildfires or the historical Indian migration routes in the area.

National Park Service spokesman Jeff Olson confirmed Ruterbories is the oldest seasonal ranger the park service knows of. (The oldest full-time ranger is 92-year-old Betty Soskin, who works at Rosie the Riveter/World War II Home Front National Historical Park in Richmond, California).

As Ruterbories has gotten older, park officials ask him to check in on the radio each evening. He doesn't go out on emergency calls anymore and a bad knee has kept

him from wandering the backcountry. He has designed special tools to help him get the jobs done around the campground, like the wheeled cart he uses to haul logs.

"He's pretty ingenious," Emmerich said. "As he ages, he has to get smarter. He thinks it through and he's not going to hurt himself."

But a bum knee is threatening to bring an end to his ranger career. The cartilage was removed in 1969, and now the joint has worn through and is hitting a nerve. He walks with a pronounced limp. An operation could fix it, but he's worried about recovering from surgery at his age. If he doesn't go through with it, retirement is likely. "I'll tell you what's going to happen. Everybody's talking me into getting that knee fixed. If I get it fixed, I'll be back," he said.

According to Emmerich, it will be up to Ruterbories on whether he returns in 2014. "It's his choice. He always said, 'I'll retire when you retire,'" said Emmerich, 56.

By the time the US government shutdown closed Glacier, Ruterbories had already left the park — perhaps for the year, perhaps for good. After the Labor Day weekend crowds departed, he went about his annual ritual of shutting down Kintla Lake.

He knew this time may be the last. But if he felt a pang of remorse at the prospect of leaving the paradise he and his wife made for themselves, he didn't show it. His main concern is taking extra care in cleaning the little red cabin in case a new ranger is there next summer.

"I don't like to leave a mess for anybody," he said.

*Matt Voltz is the supervisory correspondent for the Associated Press in Montana.*



***A simple hello at a campsite can turn into a 45-minute discussion of past bear encounters, near misses with wildfires or the historical Indian migration routes in the area.***

## *What Makes the Grizzlies Dance*

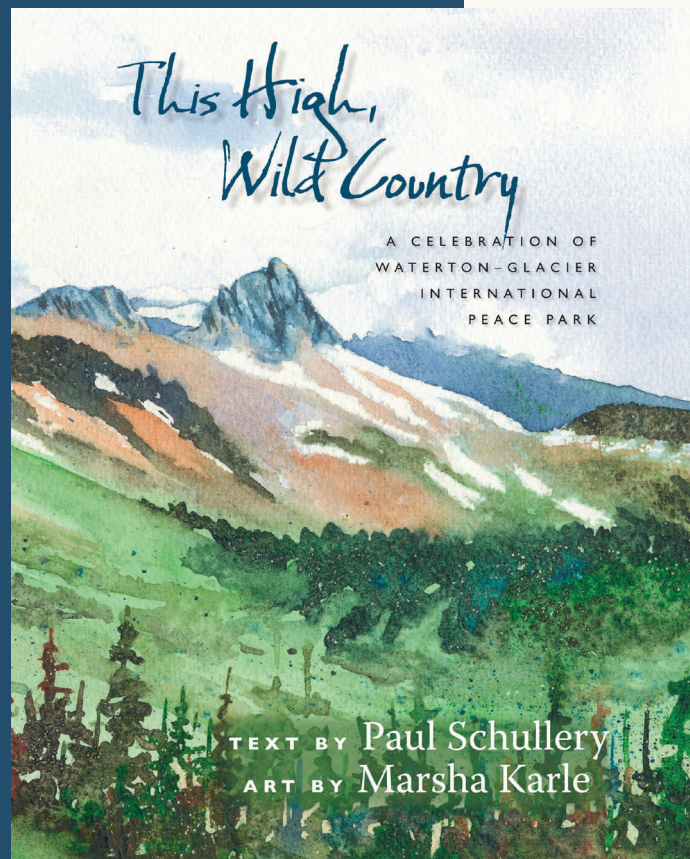
By **Sandra Alcosser**

June and finally snowpeas  
sweeten the Mission Valley.  
High behind the numinous meadows  
ladybugs swarm, like huge  
lacquered fans from Hong Kong,  
like the serrated skirts  
of blown poppies,  
whole mountains turn red.  
And in the blue penstemon  
grizzly bears swirl  
as they bat snags of color  
against their ragged mouths.  
Have you never wanted  
to spin like that  
on hairy, leathered feet,  
amid the swelling berries  
as you tasted a language  
of early summer? Shaping  
the lazy operatic vowels,  
cracking the hard-shelled  
consonants like speckled  
insects between your teeth,  
have you never wanted  
to waltz the hills  
like a beast?



Courtesy of the Greater Yellowstone Coalition

*Sandra Alcosser, Montana's first Poet Laureate, is founding director of the MFA Program in Creative Writing at San Diego State University. Her seven books of poetry have earned her the Associated Writing Program's Award in Poetry, the William Stafford Award, and the Merriam Award for Distinguished Contribution to Montana Literature. Widely published, Sandra lives in the Bitterroot Valley in Montana when she is not teaching in San Diego.*

BOOK  
REVIEW

**This High, Wild Country.**  
**A Celebration of**  
**Waterton-Glacier**  
**International Peace Park.**

Text by Paul Schullery  
 Art by Marsha Karle  
 121 pp. + Appendix and Index  
 Albuquerque:  
 U. of New Mexico Press  
 2010.

I'll be right up front about it—I love this book! From the moment I read the first few paragraphs of Paul Schullery's "Introduction" and saw the first of Marsha Karle's magnificent watercolors, I was hooked. Intended as a "Celebration" of this unique, transnational International Peace Park shortly after its 75<sup>th</sup> Anniversary (2009) and just prior to Glacier National Park's own 100<sup>th</sup> Anniversary (2010), this special book by the dynamic author and artist duo who reside in Bozeman, Montana, represents, as the saying goes, "the gift that keeps on giving,"—to the International Peace Park, to all of us in love with this spectacular, rich, and complex piece of nature, and to all of us who have the good fortune of taking this book into our hands and beginning our adventure with it.

Paul Schullery is known to many through his previous books on Glacier, Yellowstone, Alaska, and America's National Parks. His engaging and exceptionally readable text, drawn from his own experiences in Waterton-Glacier since his first visit in 1974, is based on his keen observations as a naturalist, conservationist, and interpreter of relevant scientific knowledge. What I especially admire about the writing is that it is accessible without being simplistic in any way, engaging, colorful, and even eloquent. The content is informative, knowledgeable, smart, even-handed, inquisitive, and, at appropriate times, infused with passion. Schullery is clearly an environmentalist, concerned, as all of us are who love places like Waterton-Glacier, about the Park's health in the face of many threats and dangers. He also recognizes that Waterton-Glacier is different from wilderness areas, and that, by design and by law, is expected to both protect the natural features with which it is blessed *and* accommodate many types of visitors with diverse, legitimate needs, abilities, and goals. Such a place, he seems to imply, is protected in the ways it is *because* millions of people visit it, enjoy it, and experience it in a myriad of ways.

Marsha Kale, known throughout the region for her impressive art in various genres, not only provides stunning illustrations to the text, but offers her own visual take on the Peace Park's many facets. Her watercolors capture both the details and the grand, panoramic magic of this remarkable place. As good art does, they transport us into another world and help us see things with fresh

eyes. She is clearly enchanted by this natural world, and we are lucky she shares her vision with us.

*This High, Wild Country* is organized into an Introduction and five chapters, each of which offers new information and insights, but also complements the others. In the Introduction, Schullery provides a quick (hi)story of his own experiences and interactions with this international park, stretching between 1974 right up to 2010. He offers a brief account of Waterton-Glacier and a wonderful overview of some of the most salient reasons why it is so special. He points out its towering mountain peaks and lush valleys, its diversity of flora and fauna, and its complex and fascinating geological make-up. In doing so, he reminds us of all that we can learn from this place: about nature and geology, about the earth's history and human history, about its wonders and its wonderful inhabitants, its challenges and amenities, and, perhaps most importantly, about ourselves. And we also find on almost every page exquisite and evocative watercolor paintings that draw us into this special place, both visually and sensually.

In the first chapter, the author poses questions that most of us non-geologists ask about different rock formations—how and when they came to be, how they have changed and are still changing—and then he posits answers, explanations, observations, and conjectures. Even though Schullery reminds that he is NOT a scientist, he has certainly done his research, and we come to understand far more than if left to our own devices. I particularly like the way he describes the dramatic geologic differences between the east and the west sides of the park, and between the north and the south, as well as the other distinct pockets of "rock" formations scattered throughout. Karle's watercolors enhance what we read, but also thrill us with their artistry. In this chapter she offers an inspiring mix of huge vistas (Mountain Pyramid, Grinnell Lake) and small creatures and formations.

The next two chapters shed light on the many critters, blooms, and major features (waterfalls, wide valleys, mountain peaks) that one sees when trekking through the various habitats. We read about encounters with grizzly bears, the behavior of the range of mammalian

predators from bears to bobcats and fishers, and on to martens, weasels, and shrews. Schullery also discusses the conditions of native and invasive fish, the saga of the eagle and kokanee who not-so-many years ago met up near Apgar annually in the fall, as well as the ramifications of the reintroduction of gray wolves into the ecosystem. And to add color to text, Karle lets us observe chickadees, paintbrush, wild roses, beargrass, ladyslippers, moose, bighorn sheep, and grizzly bears, and she also illuminates dramatic sights like Clements Mountain, Avalanche Creek, and Wynn Mountain. Chapter four extends our visit by focusing on goats and the unique places they generally inhabit. Here we are pulled along (willingly) as the author and artist hike through Gunsight Pass, to Lake Mary Wilson, and around Lake McDonald.

In the final chapter we are led to the east side of the park, to Chief Mountain and the Rocky Mountain Front, and up into Canada to the eastern and northern parts of the International Peace Park. They invite us to the Weeping Wall on Going-to-the-Sun Highway, to several historic and iconic lodges and chalets, to familiar and not-so-familiar park trails. We are also instructed about appropriate behavior in the park, the stakes involved in continuing to protect this spectacular and fragile ecosystem, the "toys and tools" that one takes along when exploring it, and even about the motorized means of getting from one part to another (historic boats on the lakes and the iconic red busses, for instance).

The book concludes with a thorough bibliography of other published works on Waterton-Glacier as well as an "Index." Both of these features provide readers with additional resources to augment their experience with book and Park.

And there you have my enthusiastic take on what I assert is a real star in the ever-growing list of important publications about Waterton-Glacier International Peace Park. I heartily recommend it to everyone and encourage you to buy it for yourselves or as gifts for others who already know or should get to know this fascinating international park.

*Jerry Fetz, Co-editor*

# Celebrating with Prose and Paint

Historian-naturalist Paul Schullery and his wife, artist Marsha Karle, share with us the wonders of Waterton-Glacier International Peace Park in their book *This High, Wild Country*, this talented couple takes us on a one-of-a-kind, first class nature tour from the comfort of our armchairs.

Paul writes from his heart, and his easy-on-the-ear words introduce us not only to the unique character of this landscape, but also convey our responsibility to it. While his verses alone make a good read, Marsha's rich watercolors uncover why we, and they, care so much about the future of this high, wild country.



## Lake Scenic

... after all these years of studying and thinking about the aesthetic and even moral consequences of what we've done in our attempts to "improve" wild landscapes, I never catch a non-native fish without a certain regret. We have never really improved any wild landscape, and certainly we don't do so by dumping strange new life forms on it, however beautiful or extraordinary they may be in their own right.

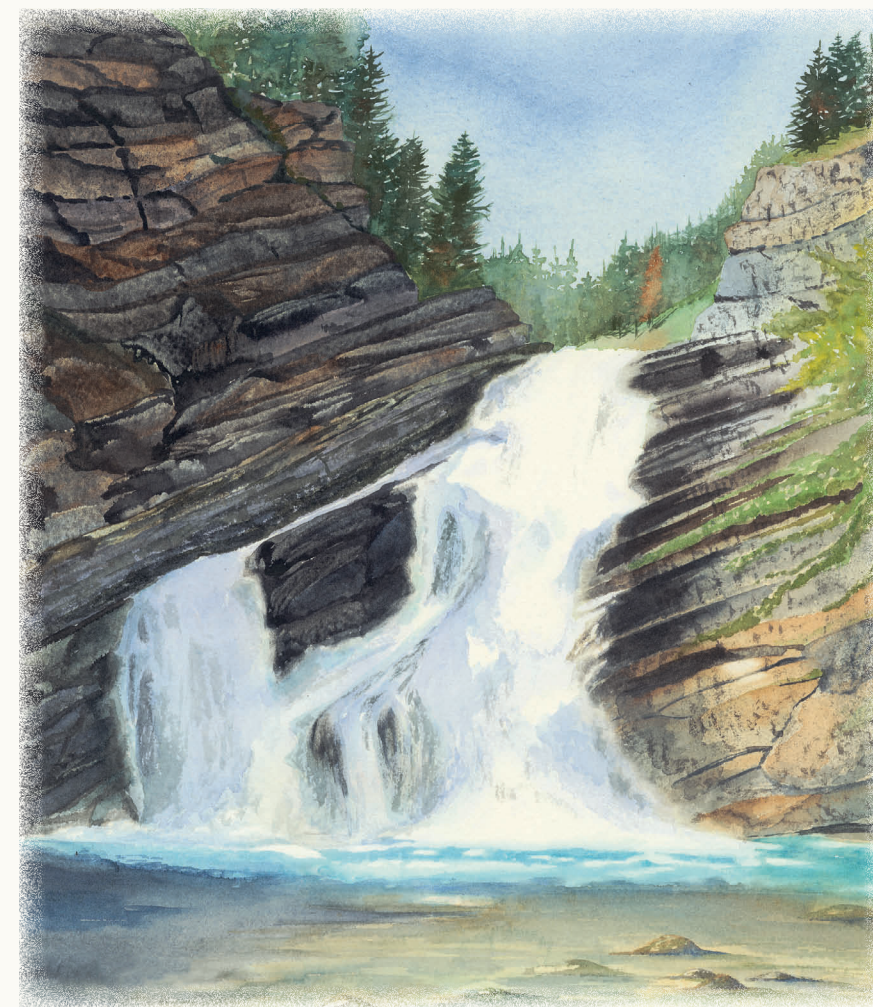


## Alta Pyramid

Though these mountains still don't remind me of the pyramids of Egypt, I was suddenly struck by their similarity to certain Mayan pyramids... With their stepped and often very steep sides, their intricate facades, and their flat caps, the Mayan temple-topped pyramids seem to me perfect stylized imitations of glaciated peaks. A few centuries of weathering, crumbling, and general collapse of the human-made pyramids of Central America have only made the similarities more pronounced. It causes me to wonder what the Mayan master builders would have made of this place if, at the height of their own construction activities, a few had found their way here. In a certain mood, it's nice to imagine that they did.

## Cameron Falls

What the glaciers left was one of the most tortuous, abrupt, and neck-straining drainage systems in North America. All those horns and cols and hanging valleys, with all their remaining snowfields and ice, shed the glacial melt and snowmelt and summer rain in long, waving threads of water that always surprise you as you approach them, their roar awakening you to their true size and volume.







### *Clements Mtn*

Almost immediately, for me at least, the country we've just crossed, with its lingering glaciers, bragging-size passes, bright-eyed wildlife, and smoke-tinted light, becomes a little unreal. When I have to describe Waterton-Glacier to someone who hasn't been there, my mind fills with the feelings of the country, and my mouth trips over inadequate adjectives. The magic of it never leaves me, but when I'm not there I'm haunted by the insufficiency of my memory to do it justice.

### *Bear with cubs*

At 6:52, I saw what I was most looking for. A grizzly bear sow became partially visible, moving through the scrubby vegetation only a little way up the slope behind the lodge. Over the next few minutes, her two cubs revealed themselves in disappointingly brief intervals, and then the whole family settled down in a little grove of mixed brush, aspen, and evergreens. Though I saw parts of them now and then over the next half hour, I never got such a good look again.



### *Deer in Aspen*

While you can count on exceptional, even extraordinary winds on the peaks anywhere in the park, the east side, from Waterton Park down through Glacier, gets some amazing winter winds through its narrow valleys...St. Mary recorded gusts of 100 miles per hour in December 1979, as did Many Glacier a year later, but in 2006 a gust was measured at 164 miles per hour at Marias Pass near the south boundary of Glacier National Park.



For a really easy and persuasive look at the effects of these winter winds, take a ride northwest from Babb, up the Chief Mountain International Highway toward the Canadian border. You'll drive for miles through beautiful but very short aspen forests... In the fall, when these aspens turn blazing gold, their only rivals for autumn photogenity in the park are the pale yellow larch forests that stretch up and down the North Fork Valley on the park's opposite boundary.

### *Larch*



### *Goats*

Much more than the grizzly bear, the mountain goat has been the traditional symbol of Glacier National Park. The Great Northern Railway, which had so much to do with the opening of Glacier to visitors in its early years, adopted the goat as its symbol, and a more admirable one is hard to imagine... A band of goats picking its way across a nearly sheer cliff face can inspire as much disbelief as empathetic nervousness.

### *Coastal forest with hikers*

The only part of backpacking that I really love is going down the trail. I just like being out there, whether trying to put on the miles or just moseying along... There is an inordinate satisfaction to be had in the hiker's precious self-sufficiency – of knowing that you are carrying everything you need, if only for the next couple of days...



### Marsha Karle

**Marsha Karle** started her career in the National Park Service in Denali National Park, Alaska. She was later stationed in Denver, Yellowstone NP, Washington DC, Everglades National Park, Mount Rushmore, Pearl Harbor, and Anchorage, Alaska. Since retiring in 2004 to pursue her artwork full time, she has been active in the Montana Institute of the Arts.

### Paul Schullery

In 1972, **Paul Schullery** took a summer seasonal job as a ranger-naturalist in Yellowstone National Park and set the course of his life as a student of natural history and the human relationship with nature. In 1988 he was employed full-time in Yellowstone NP and was the founding editor of *Yellowstone Science*, the Park's quarterly natural- and cultural-resource research magazine until he retired in 2009.

For more information on Paul and Marsha's work, visit: [www.karleart.com](http://www.karleart.com) and [www.paulschullery.com](http://www.paulschullery.com).

