Winter 2012-2013

MONTANA Naturalist

Why can't we just get along?

Hiking Columbia Mountain

Birds in Snow

Stargazing and More

page 9

Montana Natural History Center
Connecting People with Nature

TO PROMOTE AND CULTIVATE THE APPRECIATION, UNDERSTANDING AND STEWARDSHIP OF NATURE THROUGH EDUCATION

Winter 2012-2013

MONTANA Naturalist

Features

Departments

Special Pull-Out Section

Cover – A Grizzly Bear *(Ursus arctos horribilis)* feeds along the shore of Yellowstone Lake as a snow storm blows in on a cold Fall afternoon in Yellowstone National Park. Captured with a Canon 7D and 70-200/2.8L IS II in aperture priority mode with an exposure bias of + 2/3 at ISO400, f/2.8, and 1/500th of a second. The camera was handheld. This bear was photographed while leading Rocky Mountain College students on a class trip for ART243 - Nature Photography.

Photographer Dave Shumway is the staff photographer and adjunct instructor of photography for Rocky Mountain College in Billings, Montana. Dave has two passions, one for the outdoors and one for photography. To this end he spends much of his time in the ecosystems in and around Yellowstone National Park. www.daveshumway.com

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Connecting People with Nature

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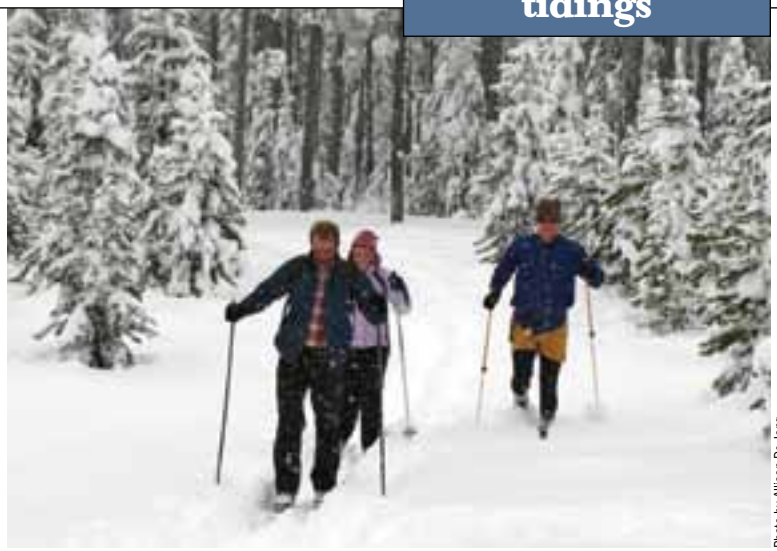


Photo by Allison De Jong

A Thanksgiving ski at Chief Joseph Pass.

As I write this, the first big snow of the season has just fallen, and I look out my window at a world frosted in white, snow outlining branches and power lines in true winter wonderland fashion. I'm ready to get out my skis, shush softly over the snow, and explore the magic of winter in Montana.

We Montanans love getting out into the wild spaces, and we're fortunate—they are (sometimes literally) right out our back door. Much of this issue looks at the places where we, and all the roads and technology and civilization that come with us, intersect with that wildness. And in those places where the lines blur, questions arise: What is wildness? What are our responsibilities as people who live in such close proximity to wild creatures? What do we do when we must actually share land with grizzlies and wolves, who have been a part of this landscape longer than we have? Whose land is it, really?

There are no easy answers to these questions, but we can't help but try to find them, as you'll see in this issue: the non-profit group People and Carnivores works to make the meeting place of humans and wild creatures a peaceful one (pages 4-5). Writer and outdoor adventurer Matt Holloway wrestles with the questions that arise when we explore the unwild wild (pages 6-8). Naturalist Mike Canetta fills his birdfeeders for hungry Evening Grosbeaks and other birds during a blizzard, seeing firsthand how these wild animals interact with an urban environment (pages 14-15).

This winter, as you're hiking or skiing or snowshoeing through your favorite wild places, or enjoying one of MNHC's Evening Lectures or Naturalist Field Days, I encourage you to ponder some of these questions, and see what answers you may discover.

Happy Holidays!

Allison De Jong
Editor
adejong@MontanaNaturalist.org

This Land is Our Land, This Land is Their Land

People and Carnivores Wants Us to Get Along

By Caroline Kurtz

©iStockphoto.com/doodlemachine

Spotting a young male grizzly bear ambling in a sunny meadow on an early spring day, his chocolate coat reflecting silver as he excavates earth in search of ground squirrels, succulent roots or pawfuls of juicy grubs, is a beautiful and awe-inspiring sight—one that anyone who lives in Montana might feel privileged, even blessed, to see.

It's different when that same grizzly comes sniffing around your ranch, attracted by the promising odors of a carcass pile or the afterbirth of newborn lambs or calves. Or if a bear learns to forage for garbage or pet food in your suburban garage. In cases like these, where people are threatened and property is lost, it usually doesn't end well for the wild animal. At the least they may be trapped, sedated and moved; at the worst, they're killed.

For this reason, a roving pair of conservation biologists has made it their mission to offer practical, research-based advice and assistance to change this age-old dynamic—one rancher, one hunter, one country- or city-dweller at a time.

"It's an intriguing problem," says Steve Primm, co-director for the relatively new nonprofit, People and Carnivores (www.peopleandcarnivores.org). "How do we live with wildlife so as to minimize the negative impacts to both people and animals?"

Intriguing, yes, and also more and more pressing as growing populations of bears—and even more difficult to deal with, wolves—are running up against increasing human populations, almost always to the ultimate detriment of wildlife.

About two years ago, Primm and colleague Seth Wilson organized the work they had each already been doing for more than a decade into People and Carnivores.

> "… the piece that has been missing is a way to resolve human-wildlife conflicts without killing off the animals that we as a society have worked so hard to protect."

The duo take an entrepreneurial approach, reaching out to myriad other organizations to partner on projects ranging from along the Rocky Mountain Front, to the Blackfoot River watershed, to the Madison, Big Hole and Centennial valleys in Montana, and beyond our state's boundaries into Washington, Oregon, and Alberta, and even overseas to Slovakia. The solutions they offer, though not perfect, are time-tested and scientifically proven. Although mostly low-tech, their tactics can be labor intensive and expensive to implement, hence the value of cost-sharing collaborations [see sidebar].

Primm and Wilson add thousands of miles to their pickup trucks each season as they travel from county to county to offer practical support to landowners dealing with negative impacts of bears or wolves, hold educational gatherings for community members to learn about bears and other species, and build bridges between people who live and work on the land and those whose passion is to see endangered wild species prosper.

"*Ursus arctos* is an incredibly adaptable species," Primm says. They search out many different sources of food and, while now confined mostly to montane habitat, they used to live out in the open. "Because of this history, we know we can expect to find bears where people are, but the piece that has been missing is a way to resolve human-wildlife conflicts without killing off the animals that we as a society have worked so hard to protect."

For his part, Wilson, who also coordinates the wildlife committee for the collaborative conservation effort, the Blackfoot Challenge, has spent several years researching what factors predispose conflict between people and bears, and what the specific land-use practices are in different places where conflicts perennially occur.

"I find ranchers very open about sharing information," he says. "We give them ideas about what the bears might be doing and why, but they know the landscape. They *know* if grizzlies are there or not."

Wilson adds that people who have lived on the land for multiple generations understand bears. "The bigger challenge is working with people who just moved here," he says, as in the Blackfoot Valley, where bear numbers have been increasing. "Often newcomers are not even tuned in to the fact that bears are there, let alone how to live with them."

What Wilson and Primm recommend people do to avoid or mitigate unwanted encounters with large carnivores depends on the context. Each valley and watershed is unique, with different attractants that vary depending on the time of year. But in each case, having unfettered access to human garbage, bee hives (larvae are super appealing to bears, not just honey), fruit trees, livestock

feed or pet food, boneyards, afterbirth and newborn animals (and, increasingly, chickens in urban areas)—all increase the chance that bears will stick around.

These attractants, particularly when they are concentrated along river and creek bottoms, are "just like a Sunday buffet for bears," says Wilson. And the animals remember exactly where to find the choicest goodies and teach that to their cubs.

One highly successful project to close down this smorgasbord started in the Blackfoot in the late 1990s and early 2000s with the Blackfoot Challenge, and focused on removing and composting the carcasses of dead livestock that every ranch and farm has. P&C teamed up with the Blackfoot Challenge and MT Department of Transportation (which does the actual composting at their facility, where they also handle roadkilled deer and elk). The project has been a partnership between the U.S. Fish and Wildlife Service and MT Fish, Wildlife and Parks, and, of course, the ranching community, to all share the costs to make it a free service for livestock producers.

Sometimes it takes patience to wait until the time is ripe for such an initiative to take hold. "Livestock carcass removal in places like the Big Hole Valley could be helpful for reducing wolf-livestock conflicts," says Wilson, "but we don't have quite enough interest from the ranchers yet. Ultimately it needs to be their decision, not ours."

This is the most important aspect of People and Carnivores, he says—fostering a sense of respect and communication between people of different backgrounds and experiences.

"It's an absolute privilege to work with landowners and ranchers," continues Wilson, who finds they often empathize with conservationists' positions in surprising ways.

"We value what farmers and ranchers produce, and many ranchers, like the Mannix brothers in the Blackfoot Valley, pay attention to what's important to their consumers. If people in Missoula or New Jersey or California want to see wild animals on the landscape, they pay attention to that."

Photo by Seth Wilson

Primm and Wilson have built almost 150 bear poles, from which people can safely hang camp goods or harvested game out of bears' reach.

"In a really divided country," he adds, "we get excited every day by people we meet, the so-called 'radical middle'."

Primm and Wilson say that private land is essential to maintaining species diversity in this country, and eventually it becomes an issue of fairness. "If Montana ranchers have habitat that is used by wild animals, we need to have ways to help them. If people in this country value wildlife, including top carnivores, we should try to encourage public support of these initiatives so ALL share the cost," says Wilson.

"For most of our history we've pushed wildlife back, and now, as a society, we are inviting them in again," he continues. "Can we collectively roll up our shirt sleeves, get to work, and figure out how to balance the needs of people and wildlife?"

People and Carnivores certainly believes it's possible.

—Caroline Kurtz is the former editor of Montana Naturalist *and still loves learning and writing about nature and issues that relate.*

Photo by Peter Brown

A grizzly wanders across a field on the Coughlin Ranch in the Blackfoot Valley.

People and Carnivores Project Partners:

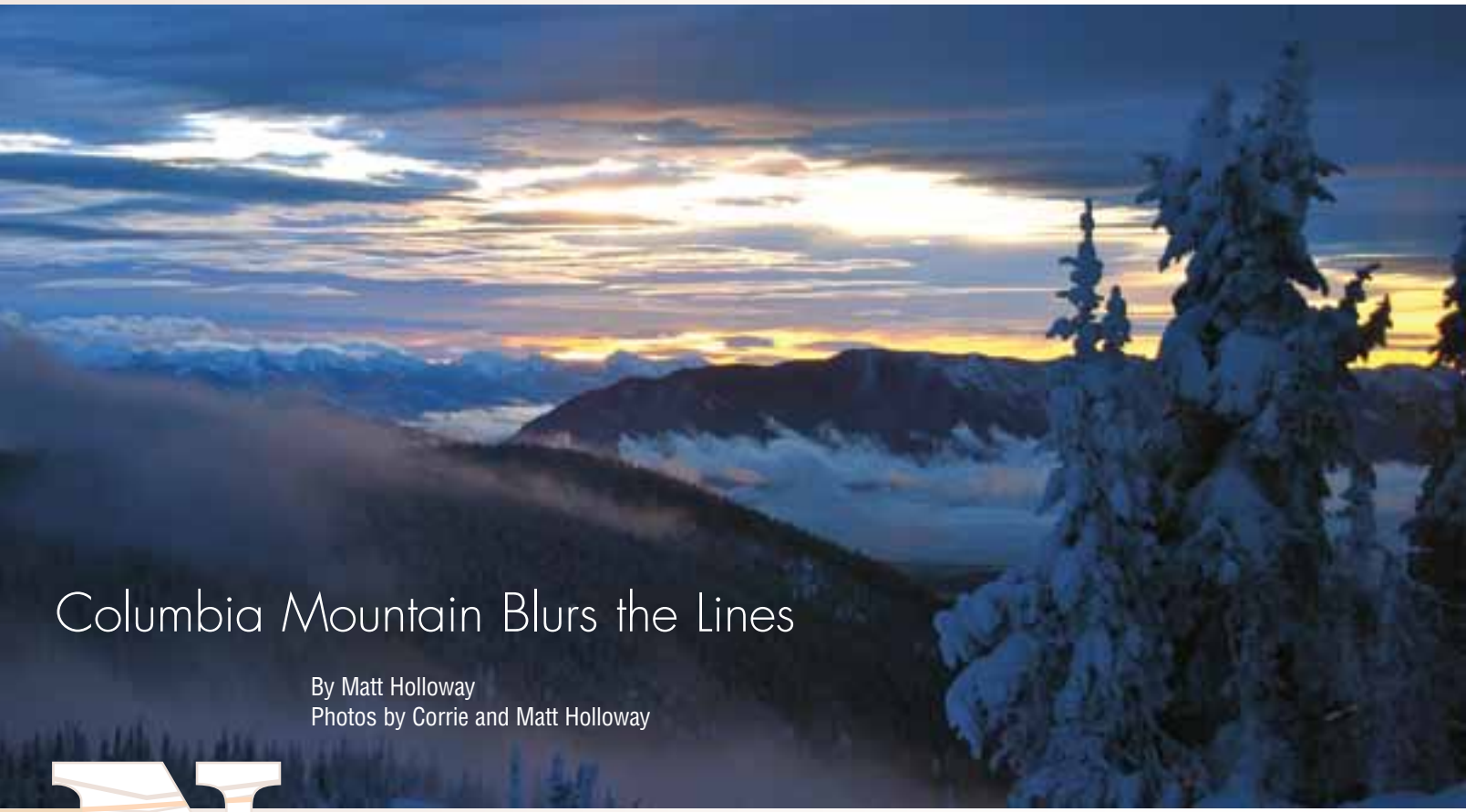
Montana ranchers, landowners and land managers
Allied Waste Services
The Blackfoot Challenge
Living with Wildlife Foundation
MT Department of Fish, Wildlife and Parks
MT Department of Transportation
MT Department of Natural Resources and Conservation
Nature Conservancy
Natural Resources Conservation Service
Northern Rockies Conservation Cooperative
Beaverhead, Flathead, Granite, Lewis and Clark, Madison, Missoula, Pondera, Powell, and Silver Bow Counties
Big Hole Watershed Committee
Wildlife Conservation Society
University of Montana, College of Forestry and Conservation
US Fish and Wildlife Service - Partners for Fish and Wildlife Program
US Forest Service
US Geological Survey
Yale University's School of Forestry and Environmental Studies

Photo by Seth Wilson

Tom Hatch with a new electric fence on his Nevada Creek Ranch.

The types of solutions that Primm and Wilson offer are simple in concept but sometimes hard to implement for busy ranchers or inexperienced landowners. In concert with other nonprofits, local businesses, and state and federal agencies, People and Carnivores helps landowners with tools like electric fencing, fladry fencing, livestock carcass removal, finding and using livestock guard dogs, and contracting with range riders to monitor cattle and wolves. Each of these has been shown to be effective at minimizing the negative effects of wildlife under certain conditions.

Between the Wild



Columbia Mountain Blurs the Lines

By Matt Holloway
Photos by Corrie and Matt Holloway

November ice crunches under my boots as I climb the steep Columbia Mountain Trail—frozen puddles fracturing into spider webs, and clods of glazed larch needles breaking apart brittle as candy. Caught in the yawn of hesitation that stretches between fall and winter, the forest floor is draped with brown and yellow leaves, and only traces of snow sit in the shadows, forecasting the white blanket to come. The chicka-dee-dee-dee call of a mountain chickadee flits scratchy and raw through the woods, and I turn to find the small bird.

But its voice and flutterings are suddenly masked by the loud holler of a train whistle—whooooo-whooooo!—echoing through the air, filling all space, suffocating song. I glance northwest toward the railroad tracks and the great, slithering serpent of metal that rattles, clanks, scrapes and whines. Steam blows in plumes from the Plum Creek Mill, and tucked against Teakettle Mountain sits the immutable and enduring concrete footprint of the vacant aluminum plant.

Powerlines, gridded roads.

Geometry, progress.

With the trail only three miles from my doorstep, I know Columbia Mountain intimately—having explored this wild landscape every month of every season for over a decade. And as always, I try and make sense of my experience, to categorize and order it neatly in my head. But with Glacier National Park and the vast Bob Marshall Wilderness to the east of Columbia Mountain, and ninety thousand humans and Flathead Valley industrialism bubbling to the west, the spine-like hogback exists as a strange middle ground, a zone of overlaps, blurred lines, and consequently, a place that spurs questions.

Above: **A winter sunset on Columbia Mountain.**

Opposite page: **The night lights of Columbia Falls.**

Rising more than four thousand feet above the valley floor, Columbia Mountain pitches steeply skyward in a near-vertical buttress of timber. On top, hanging subalpine basins scoop from peak to peak, and down low, civilization and wildness blur about the mountain's ankles. Ranches and houses butt up against pristine fish, bird, and animal habitat—a zone of overlap bureaucratically labeled the "Wildland Urban Interface" (WUI), and pronounced "woo-eee." A good friend who works for the Forest Service is trying to rename the phrase "Wildland Rural Interface" (WRI), since the title is more appropriate, and the acronym sounds like "worry."

Today, people ride dirt bikes and mountain bikes along the Swan Crest Trail, and every year during hunting season I hear the whiny, nasal ejaculations of motorcycles zipping about the mountaintops. Columbia Mountain and the northern Swan Range are not protected under any special wilderness or management designation—except for Jewel Basin as a hiking-only area—but they connect like an extended

and the Not-Wild

forefinger to the broad fist of the Bob Marshall Wilderness. Bears, wolves and other critters travel from the interior of the Bob to the Flathead Valley, and vice-versa, via the Swans. Every spring, like clockwork, grizzlies spill down the west slope of the Swan Mountains in search of green valleys rich with protein-filled foods, the mountains like a great ramp for the bears to descend.

Words tumble in my mind: Wildness. Motorcycles. Worry. These blurred lines of distinction.

I climb at a brisk pace, sucking cold wind, but I've yet to make the transition out of the lowland forest. Down here, Western cedar and Western hemlock, along with birch, cottonwood and aspen, grow from small, wet seeps and rivulets. Douglas-fir, grand fir, Englemann spruce, Western white pine, lodgepole pine, Ponderosa pine, and Western larch stand scattered on the hillside, growing at all ages and heights. The understory of pipsissewa, thimbleberry, Oregon grape, false Solomon's seal and ceonothus transition to beargrass meadows and subalpine forests, where smaller subalpine fir and five-needled pines take the place of the low-elevation monarchs. The summit itself, at 7234' above sea level, is a little mound of rocks, completing the ecosystem climb from rainforest to alpine.

> "One thing I love—a bit of magic, I believe—is how in a single, morning hike, I can transcend time."

One thing I love—a bit of magic, I believe—is how in a single, morning hike, I can transcend time. Huffing up Columbia Mountain allows me to go backwards through months and seasons, to reverse nature's clock. For instance, in mid-July, summer beargrass blooms at the trailhead, but by mid-mountain their stalks will be closed, and arnica and arrowleaf balsamroot will be opening their yellow petals instead—something they did two months ago in the valley. Then, near the summit, chasing damp snowmelt, the first unbloomed shoots of glacier lilies and spring beauties will poke out their heads–flowers that burst open down low as early as April.

The best, however, is in early fall, when I find respite from the smoke, fires and scorched earth by hiding in a dark, wet fold of high mountains, alongside Indian paintbrush, purple aster, and the whisper-like trickle of—

—again, the human world intrudes, this time a commercial jet, deep and sonorous, rumbling in the clouds, somewhere over the valley. A wave of sound presses firmly against the mountain, guttural, and then recedes . . . a faint hum . . . gone.

The plane triggers memory.

This past summer, I walked to the top of Columbia Mountain with my stepfather, Charlie. Riding the peak of summer, a crystalline sky strung blue and taut across the curve of the earth, and mountains rippled clearly from horizon to horizon. The air tasted clean and the sunlight landed warm on my shoulders and neck. A halcyon summer day. Except we spent too much time looking down on passenger jets banking along the base of the Swans, finishing their approach into the Kalispell airport. Charlie noted how the out-of-place, mechanical sounds—drag-piped motorcycles, tractor-trailer semis, jets, prop planes, helicopters, RVs—all floated upward, as sound does, and followed us clearly to the top of the mountain. But, then again, on the summit we found a wrought-iron chair, complete with sunflower artwork for backing. Packed up on stock, I guess. Charlie posed in the chair, purposefully goofy and studious, looking out of place as the chair itself, straddling the top of the mountain.

Left: Charlie enjoying a well-deserved rest on the mountain-top chair.

Above: View of the Flathead Valley from the slopes of Columbia Mountain.

A zone of overlaps, and more blurred lines.

I often wonder this: How can we consider a grizzly bear in the Bob, Glacier Park, or Columbia Mountain to be wild? Grizzlies exist under a human-created blanket of "bear management" rules, including explicit behavioral and geographical boundaries, which vary depending on the region and agencies involved. If bears act outside of allowable behavior, such as in a predatory fashion, they are killed. If they wander outside an allowable zone, such as into town, they are killed. Sometimes, bears are even killed because they exhibit behavior that would likely precede an attack. Parameters like these seem all too akin to those of a zoo, which leads me to perceive the Bob and Glacier Park—which, for all their size, are still only islands of wilderness—as merely glorified zoos, the difference being a matter of degrees.

And yet: how can that same not-wild grizzly be considered trammeled and tame as it rounds a bend in the trail, coming at me with its head down and teeth clacking? My perception, philosophy and reason call that bear inextricably wild.

Is the bear wild and not-wild at the same time?

Our ideas and language seem inconsistent and insufficient. It doesn't hold to say, "What is wild here is not wild there. And vice-versa."

But perhaps I shouldn't confuse wildness with danger. A grizzly in a cage is largely stripped of its wildness and self-determination, but remains forever dangerous. A grizzly in the Bob or Glacier Park is likewise pared of its true autonomy and freedom, but is also dangerous. Then again, perhaps the dangerous side of the grizzly is merely its own wildness bubbling to the surface, refusing to acquiesce.

I'm confident this identity conundrum means nothing to the mind of the grizzly, which likely sees itself as no more or less wild than the next bear, tree, or human—drawing no such distinction, wildness meaning nothing. Similarly, for other people and cultures, wilderness was simply "home." To us, wilderness is anything but home, it is not-home, the else, the other. Most commonly, it is a job provider, a recreational playground, a hunting outpost, a last stockpile of extractive resources, or a dark and demonic place that demands taming.

Perhaps this sacred, cultural division between the landscape and us, as narrated and perpetuated by our anthropocentric mythology, is what keeps us irrevocably bound as tourists in the wilderness—guests, sightseers, and visitors—instead of deeply rooted as participants. We are reduced to sideline critics, unable to reconcile the wild and the not-wild.

Walking along the trail, I wonder: What if we were to live differently? If we were to change the way we live, work to once again be at home in wildness, our ideas and perceptions would follow, wouldn't they? Our frameworks, schemas, and flow charts would shift, and—

—again, the train whistle cuts through the silence, through my thoughts. A scream, blasting into the mountain. Peremptory and defiant, sounding its anger at the slate, gray sky.

But, to some people's ears, the train whistle is the jubilant wail of freedom. To others, money rollin' on down the line. Or prosperity. Employment. Benefits. A mortgage. Insurance, and retirement.

Sometimes, when that whistle blows, I hear the dusty sound of my grandparents' voices singing along with Jimmy Rogers, the Yodeling Brakeman. I'm transported by the train whistle to Mississippi, the land of my childhood.

I turn from the trail and aim for the base of a Douglas-fir, its web of roots surfacing like dirty wrists from the mossy earth. I sit. Lean back. I look through the binoculars and find my home, nestled among the other homes, in the grid of Columbia Falls.

I listen: the hum of nothing, for now.

No need for the word wilderness.

No need for words at all.

Like Columbia Mountain.

Lines blur.

—Matt Holloway lives with his wife, daughter and son in Columbia Falls, Montana, and writes when he's not clawing around in the wilderness. His work has appeared in Montana Magazine, Big Sky Journal, Montana Headwall, *several anthologies, and more. Holloway is the fiction editor for* Whitefish Review.

Donald Owen, California Department of Forestry and Fire Protection, Bugwood.org

Whitebark Pine:
One of Nature's Toughest Survivors

By Baruch Chamberlain and Jordan Kibbee

The whitebark pine is a remarkable example of an organism well adapted to a harsh environment. It lives high up in the mountains of the American West, and ranges northward into Alberta and British Columbia. As a keystone species whose seeds provide essential food for grizzlies and Clark's Nutcrackers, the whitebark pine is a good indicator of ecosystem health.

Whitebark pines live in an unforgiving climate: timberline in the Rockies. They live on steep, rugged cliffs and in rocky gullies, huddled together on dry, windswept slopes, usually higher than six thousand feet. Their growing season is extremely short (sometimes only three months), the soil is poor, and there is very little water. In this challenging environment, some whitebark pines live to be 1200 years old.

The reason these trees survive so long is precisely because of where they live—the more desolate, the better. At those high, rocky elevations, it's hard for the tree to survive, but it's even harder for fungi and insects. Because the habitat is so dry, few decomposing agents can effectively attack a whitebark pine, and pine beetles are not adapted to the cold and windy mountain tops. Wildfire can burn up a whitebark pine stand on occasion, but there is usually not enough fuel for a fire to burn destructively. The result? The whitebark pine is usually free to cling to its little spot in the rocks for many hundreds of years.

Trees Can Get Blisters Too

But these hardy trees are being threatened by a fungus called white pine blister rust, which is creeping up the mountains and efficiently killing them off. The white pines of North America have not evolved to deal with the blister rust and they are succumbing to this disease—particularly the whitebark pines at higher elevations in Montana and Alberta.

Blister rust cankers girdling a branch.

Diane Hildebrand, USDA Forest Service, Bugwood.org

The spread of white pine blister rust and the effect on white pine stands was, until now, limited by weather. Dry weather and cold climates are not favorable for blister rust, so the higher elevations where the whitebark pine grows have historically been almost free of the disease. Unfortunately, as global climate change intensifies, the fungus is spreading to new places that once were too cold for it to survive. As a result, the whitebark pine, which has successfully passed Nature's toughest tests for thousands of years, is being wiped out. Only time will tell if some of the oldest trees on the planet can survive this latest threat.

Word Search

W	M	U	C	G	L	S	O	X	T	C	V	T	B	C
T	H	J	N	Q	U	P	N	E	F	O	G	L	N	L
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Z	L	B	W	H	O	R	I	F	F	O	H	T	N	P

ASTRONOMER
BLISTER RUST
CLIMATE
COLD
CONSTELLATION
DRY
EXOPLANET
KEYSTONE
MINERVA
MONTANA
MOUNTAINS
PLANET
SKY MAP
STAR
SURVIVE
TELESCOPE
UNIVERSE
WHITEBARK PINE

Tiger Salamander Naming Contest Results

We have a winner! Kehla McClurg, a 5th-grader from Frenchtown, submitted the winning names for MNHC's tiger salamanders: **Pickles** and **Tiger.** Stop by and visit our newly-named critters!

MNHC Photo

Special Pull-Out Section: pull out and post these pages for handy reference.

get outside calendar

MNHC Hours:
Tuesday-Friday, noon - 5 p.m.
and Saturday noon - 4 p.m.

Admission Fees: $2/adults,
$1/children under 12 (maximum $6)
Free/children under 3 and
MNHC members

January Gallery all month. **Brian Williams: Wildlife Photography.**

January 2 **Volunteer Naturalist Training,** 4:00-5:00 p.m. **Bone Detective.** Prepare for January classroom visits. No prior experience necessary.

January 3 **miniNaturalists Pre-K Program,** 10:00-11:00 a.m. $3; $1 MNHC members.

January 12 **Saturday Kids' Activity,** 2:00-3:00 p.m. **Hibernation Celebration.** $3; $1 MNHC members.

January 16 **Glacial Lake Missoula Chapter Meeting,** 4:00-5:00 p.m. Open to the public.

January 17 **miniNaturalists Pre-K Program,** 10:00-11:00 a.m. $3; $1 MNHC members.

January 19 **Naturalist Field Day,** 9:00 a.m.-5:00 p.m. **Advanced Tracking Course.**

January 30 **Evening Lecture,** 7:00 p.m. **The Missoula Butterfly House and Insectarium.** $4; MNHC members free.

February Gallery all month. **Jocelyn Catterson: Wildlife Photography.** Gallery Opening Wednesday, February 13, 6:00 p.m.

February 2 **Naturalist Field Day,** 9:00 a.m.-5:00 p.m. **Winter Raptors with Denver Holt.**

February 6 **Volunteer Naturalist Training,** 4:00-5:00 p.m. **Adapting to Winter.** Prepare for February classroom visits. No prior experience necessary.

February 7 **miniNaturalists Pre-K Program,** 10:00-11:00 a.m. $3; $1 MNHC members.

February 9 **Saturday Kids Activity,** 2:00-3:00 p.m. **Family Winter Ecology Walk.** $3; $1 MNHC members.

February 12 **Spring Master Naturalist Course,** 4:00-7:00 p.m. Tuesdays to May 7, with three full-day field trips on March 2, April 13 and May 4. $395; 3 college credits available. Call 327.0405 to register.

February 13 **Evening Lecture,** 7:00 p.m. **Backcountry Medicine: MT Species and Their Potential Medicinal Uses with Rustem Medora.** $4 suggested donation; MNHC members free.

February 13 **Gallery Opening,** 6:00 p.m. **Jocelyn Catterson: Wildlife Photography.**

February 20 **Glacial Lake Missoula Chapter Meeting,** 4:00-5:00 p.m. Open to the public.

February 21 **miniNaturalists Pre-K Program,** 10:00-11:00 a.m. $3; $1 MNHC members.

February 27 **Evening Lecture,** 7:00 p.m. **Creatures in the Soil —Let's Open the Black Box with Ylva Lekberg.** $4 suggested donation; MNHC members free.

March Gallery all month. **Jocelyn Catterson: Wildlife Photography.**

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
January		**January Gallery,** all month. **Brian Williams: Wildlife Photography.** 1	**Volunteer Naturalist Training.** **Bone Detective,** 4:00-5:00 p.m. 2	**miniNaturalists Pre-K Program,** 10:00-11:00 a.m. 3	4	5
 Richard Lake, YNP			*Grouse grow stiff feathers on their feet, which function like snowshoes* 9	10	11	**Saturday Kids Activity. Hibernation Celebration,** 2:00-3:00 p.m. 12
			Glacial Lake Missoula Chapter Meeting, 4:00-5:00 p.m. 16	**miniNaturalists Pre-K Program,** 10:00-11:00 a.m. 17	18	**Naturalist Field Day. Advanced Tracking Course,** 9:00 a.m.-5:00 p.m. 19
20	21	*Flocks of mixed-species birds forage together* 22	23	24	25	26
27	 glowimages.com/ Dmitry Maslov		**Evening Lecture. The Missoula Butterfly House and Insectarium,** 7:00 p.m. 30	**February** 31	**February Gallery,** all month. **Jocelyn Catterson: Wildlife Photography.** 1	**Naturalist Field Day. Winter Raptors with Denver Holt,** 9:00 a.m.-5:00 p.m. 2
3			**Volunteer Naturalist Training. Adapting to Winter,** 4:00-5:00 p.m. 6	**miniNaturalists Pre-K Program,** 10:00-11:00 a.m. 7	8	**Saturday Kids Activity. Family Winter Ecology Walk,** 2:00-3:00 p.m. 9
Great horned owls begin nesting 10	11	**Spring Master Naturalist Course.** *Tuesdays to May 7* 4:00-7:00 p.m. 12	**Evening Lecture Series. Backcountry Medicine,** 7:00 p.m. **February Gallery Opening,** 6:00-7:00 p.m. 13	14	15	16
 John Good, YNP		19	**Glacial Lake Missoula Chapter Meeting,** 4:00-5:00 p.m. 20	**miniNaturalists Pre-K Program,** 10:00-11:00 a.m. 21	22	23
		26	**Evening Lecture Series. Creatures in the Soil,** 7:00 p.m. 27	28	**March** **March Gallery,** all month. **Jocelyn Catterson: Wildlife Photography.** 1	**Spring Master Naturalist Course. Full-day field trip.** 2

Programs and events held at MNHC - 120 Hickory Street - unless otherwise noted.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
3	4	5	6 **Volunteer Naturalist Training.** An Experiment in Lift, 4:00-5:00 p.m.	7 **miniNaturalists Pre-K Program,** 10:00-11:00 a.m.	8	9 **Saturday Kids Activity.** Ice Age Animals, 2:00-3:00 p.m.
10	11 *Bluebirds & red-wing blackbirds return*	12	13 **Evening Lecture.** Cabin Fever, 7:00 p.m.	14 **Evening Lecture.** The Montana Native Plant Society presents Bill Caras and Jennie Meinershagen, 7:30 p.m.	15	16
17			20 **Glacial Lake Missoula Chapter Meeting,** 4:00-5:00 p.m.	21 **miniNaturalists Pre-K Program,** 10:00-11:00 a.m.	22	23 **Saturday Discovery Day.** Snow Geese Migration, 7:00 a.m.-6:00 p.m.
24			YNP 27	28	29 **Evening Lecture.** The Material Culture of Local Tribes, 7:00 p.m.	30 **Saturday Discovery Day for Families.** Cordage Making and Bow Drill Fires, time TBA.
31	**April** 1 **April Gallery,** all month. **Zoological Museum.**	2	3 **Volunteer Naturalist Training.** Fill the Bill, 4:00-5:00 p.m.	4 **miniNaturalists Pre-K Program,** 10:00-11:00 a.m.	5	6
Glacier lilies bloom through the snow 7	8	9	10 **Evening Lecture.** Lynx, 7:00 p.m. **April Gallery Opening.** Zoological Museum, 6:00-7:00 p.m.	11	12	13 **Spring Master Naturalist Course.** Full-day field trip.
 Ed Austin & Herb Jones, YNP	15	16	17 **Volunteer Naturalist VNS Field Trip Training,** 3:30-5:30 p.m. **GLM Meeting.** 4:00-5:00 p.m.	18 **miniNaturalists Pre-K Program,** 10:00-11:00 a.m.	19	20 **Naturalist Field Day. Spring Mushrooms,** 9:00 a.m.-5:00 p.m.
21	22	23	24 **Evening Lecture.** Naturalist Trivia Night, 7:00 p.m.	25	26	27 **Saturday Kids Activity.** Animal Locomotion, 2:00-3:00 p.m.
28	29	30	**May** 1	2	3	4 **Spring Master Naturalist Course.** Full-day field trip.

get outside calendar

March 6 **Volunteer Naturalist Training,** 4:00-5:00 p.m. **An Experiment in Lift.** Prepare for March classroom visits. No prior experience necessary.

March 7 **miniNaturalists Pre-K Program,** 10:00-11:00 a.m. $3; $1 MNHC members.

March 9 **Saturday Kids' Activity,** 2:00-3:00 p.m. **Ice Age Animals.** $3, $1 MNHC members.

March 13 **Evening Lecture,** 7:00 p.m. **Cabin Fever with the Glacial Lake Missoula Chapter.** $4 suggested donation; MNHC members free.

March 14 **Evening Lecture,** 7:30 p.m. **The Montana Native Plant Society presents Bill Caras and Jennie Meinershagen.** Free.

March 20 **Glacial Lake Missoula Chapter Meeting,** 4:00-5:00 p.m. Open to the public.

March 21 **miniNaturalists Pre-K Program,** 10:00-11:00 a.m. $3; $1 MNHC members.

March 23 **Saturday Discovery Day,** 7:00 a.m- 6:00 p.m. **Snow Geese Migration.** $60, $50 MNHC members.

March 29 **Evening Lecture,** 7:00 p.m. **The Material Culture of Local Tribes with Tim Ryan.** $4 suggested donation; MNHC members free.

March 30 **Saturday Discovery Day for Families,** time TBA. **Cordage Making and Bow Drill Fires with Tim Ryan.**

April Gallery all month. **Zoological Museum. Gallery Opening** Wednesday, April 10, 6:00-7:00 p.m.

April 3 **Volunteer Naturalist Training,** 4:00-5:00 p.m. **Fill the Bill.** Prepare for April classroom visits. No prior experience necessary.

April 4 **miniNaturalists Pre-K Program,** 10:00-11:00 a.m. $3; $1 MNHC members.

April 10 **Evening Lecture,** 7:00 p.m. **Lynx with John Squires.** $4 suggested donation; MNHC members free.

April 17 **Volunteer Naturalist Training,** 3:30-5:30 p.m. **VNS Field Trip Training.** Learn how to teach kids about the flora and fauna of western Montana during the May VNS school field trips. No prior experience necessary.

April 17 **Glacial Lake Missoula Chapter Meeting,** 4:00-5:00 p.m. Open to the public.

April 18 **miniNaturalists Pre-K Program,** 10:00-11:00 a.m. $3; $1 MNHC members.

April 20 **Naturalist Field Day,** 9:00 a.m.-5:00 p.m. **Spring Mushrooms.**

April 24 **Evening Lecture,** 7:00 p.m. **Naturalist Trivia Night.** $4 suggested donation; MNHC members free.

April 27 **Saturday Kids' Activity,** 2:00-3:00 p.m. **Animal Locomotion.** $3; $1 MNHC members.

Look for these program symbols in *Montana Naturalist* and on our website at www.MontanaNaturalist.org.

Adult Program

Youth Program

Volunteer Opportunity

Visit www.MontanaNaturalist.org for directions. To register or to learn more, call MNHC at 327.0405.

Is There Anyone Out There?

Earth Is One of a Kind . . . Or Is It?

It had long been thought that our sun was the only star with a solar system and orbiting planets. However, as far back as 1686, one forward-thinking scientist, Bernard de Fontenelle, speculated that many other worlds may exist and be inhabited. Today, scientists estimate that each star (of which there are an estimated three sextillion in the universe) has an average of 1.6 planets, meaning there are even more planets than stars!

A few planets and moons have water or ice, atmospheres, seasons, or even weather, but as far as we have discovered, only Earth has all of these things. On Earth, the conditions have been perfect to create and sustain life. Intelligent life—and life in general—exists only on Earth . . . as far as we know. But considering the vast number of planets that are out in the universe, there is infinite possibility that another planet like ours exists.

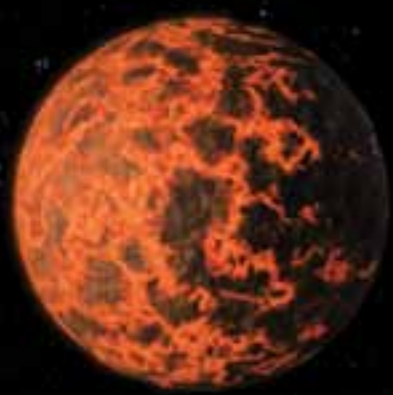
I Spy with My Telescopic Eye

Hundreds of years ago, people like Bernard de Fontenelle and Galileo Galilei made brilliant observations about our solar system with crude telescopes. With these early telescopes, astronomers observed a slight wobble in the path of stars traveling through the night sky, and theorized that planets (and specifically their gravitational pull) caused the wobble.

Telescopes gave scientists the first deeper look into our universe. Over time they have been vastly improved, and have developed into massive devices using reflecting mirrors that can see light years into space: just the sort of telescope needed to see exoplanets, or planets outside of our solar system. Astronomers detect exoplanets by observing dips in the light emitted from a star as a planet passes in front of it. As of early 2012, scientists had sighted 2,321 possible planets in the surrounding galaxies. They predict that between 2040 and 2250, over one million more exoplanets will be found.

The search for exoplanets is now the main focus of a new project called MINERVA. MINERVA will be the first exoplanet observatory of its kind with robotic telescopes capable of photometry (measures of the intensity of light) and spectroscopy (measures of the light spectrum given off by a star). With this new technology, scientists and students will search for exoplanets in our galactic neighborhood (50 to 60 light years away) and determine if there are any that can sustain life. Once again, we are on the brink of an exciting new era of discovery.

—By Windom Tilton



This exoplanet candidate is just two-thirds the size of Earth, making it one of the smallest on record. Located a mere 33 light-years away, it orbits its star scorching close--so close that in all likelihood it lacks an atmosphere, and might even have a molten surface, as shown in this artist's impression.

NASA/JPL-Caltech/R. Hurt (SSC)

Winter Stargazing

Though many of us bemoan the lack of daylight hours in winter, we should remember that the long winter nights can provide a perfect opportunity for hours of stargazing.

The constellations that are visible during the winter months include Ursa Major (the Great Bear), Taurus the Bull and Orion. All you need to view them is warm clothing and a winter sky map, which will enable you to identify all of the constellations visible in the northern hemisphere during the winter as well as the constellations that remain in the night sky year-round.

Using a sky map is simple. First, identify the cardinal direction you are facing (e.g., south). Now, hold the map up to the sky in front of you, placing the side of the map labeled with the direction you are facing positioned down. As you turn to view more of the sky, continue rotating your sky map so that the direction you are facing is always at the bottom of the map.

The stars you find with your map may, upon first observation, seem to shine white. But a closer look reveals that stars come in a kaleidoscope of colors, with the color of a star dependent upon its temperature: bluish stars are the hottest (up to five times hotter than our sun!); white stars are slightly cooler; yellow stars, like our sun, are next in line; and coolest are red and orange stars, which may be less than half as hot as our sun.

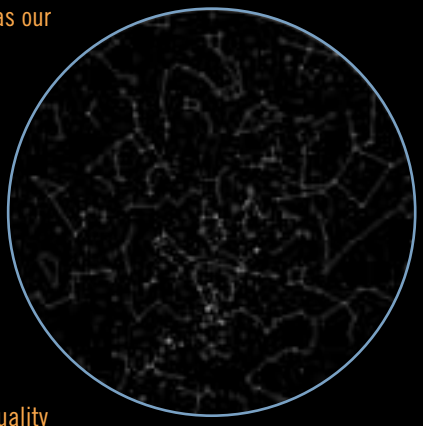


Photo by Vitaly Smolygin

Quality sky maps can be found for free at www.skymaps.com and www.geody.com/star_charts.php. You can also download smartphone apps such as Star Chart or Mobile Observatory. With a sky map handy, let those long winter nights be the beginning of endless hours of astronomical exploration!

—By Courtney Bennett

Photo by Allison De Jong

Get Your Buzz On . . .

With the Master Beekeeping Certificate Program

By Allison De Jong

Do you love honey? Have you ever wanted to make your own? Well, thanks to a new series of classes offered through UM's School of Extended and Lifelong Learning, dipping into golden jars of your very own honey may be closer than you think.

This past July, while observing one morning of the four-day intro beekeeping class, I found myself at the UM bee yard at Fort Missoula, wearing a white suit, netted hat, and long thick gloves, surrounded by the humming of hundreds of thousands of bees. Yes, that IS as nerve-wracking as it sounds. But not to honey bee expert and researcher Dr. Jerry Bromenshenk, who has been working with these insects for decades.

For most of those years, the number of bee colonies and beekeepers had been dropping in the U.S., from over 5 million colonies in the 1940s to 2.5 million today. But in the past several years, despite—or perhaps because of?—colony collapse disorder, the trend has reversed, and more and more people are becoming interested in keeping bees (and, yes, in feasting on the sweet honey they produce). Along with that interest comes the need for hands-on education from experienced beekeepers.

Enter Bromenshenk and his fellow biologist-beekeepers and long-time colleagues Scott Debnam and Phillip Welch. The three collaborated to create the Master Beekeeping Certificate Program, a series of beekeeping courses with set standards in which students must take and pass certain proficiency tests in order to be certified. Their goal in offering the program is to provide novice beekeepers with the solid foundation they need to begin keeping bees: a combination of practical information and actual hands-on experience in a bee yard.

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Photo by Marjorie Young

Photo by Allison De Jong

I watched as Bromenshenk opened a hive, carefully pried a sticky, glistening comb from its neighbors, and gently lifted it out. Thousands of bees formed a rippling black and yellow carpet on both sides of the comb, and the humming sound intensified. Despite my protective gear, I couldn't help feeling a little nervous, especially when he handed the comb to me. It was surprisingly heavy. One of Bromenshenk's assistants pumped smoke toward the bees, and they (and I) calmed down.

Learning to feel comfortable with the hives is one of the end results of the beekeeping program, which is offered at three different levels: Apprentice, Journeyman, and Master. While all three levels will be offered this coming summer, last year the only class available was the Apprentice-level, which focuses on the basics: bee biology, how to care for bees through every month of the year, and common ailments and pests and how to treat them. The course culminates with students gearing up in their bee suits and visiting the bee yard to see the bees (and beekeepers) in action—and to start practicing the skills they've learned in the classroom.

At the end of the morning, I removed my gloves, hat and bee suit, and felt a little bit of a letdown—part of me still wanted to be back in the bee yard, heart rate and breathing accelerated, with the warm sound of buzzing bees all around me. I look forward to coming back.

Interested in keeping bees? For more information about the next cycle of classes (which will be offered between May and August 2013), see SELL's website at www.umt.edu/ce/extended/beekeeping/ or call 243.6431. You can also join their community on Facebook (www.facebook.com/masterbeekeeping).

Top: Students getting hands-on experience with the hives.

Bottom: Dr. Jerry Bromenshenk, who prefers not to "suffocate in a bee suit," holds up a comb for closer inspection.

Of Blizzards & Birds

By Mike Canetta

I can remember as a young boy wearing my pajamas inside out and doing highly unchoreographed dances in hopes that the sky would drop heaps of fluffy white snow onto the ground, so much that we would be officially "snowed in." Hot chocolate, snowmen, and a day where the imagination is allowed to run wild through snow-filled adventures: What more could a kid ask for?

As I've gotten older, however, the idea of being trapped in my home, unable to get to work, school, or other commitments has lost some of its appeal. Whether I like it or not, it is a reality that I must live with, especially in Montana. But last winter, I learned that the inconveniences a blizzard presents need not blind me from the pleasures that it can bring.

On January 18th, 2012, a massive extratropical cyclone encroached on the western United States, bloated with moisture from the warm waters of the Pacific. At my home in Missoula, I watched as the snow steadily fell, accumulating rapidly. It became obvious within an hour that I would have to shelf my plans to visit Jackson Hole before the semester began. My bags already packed and ready to go, I was deflated. I made a pot of tea and hunkered down, half-expecting the snow to stop before nightfall just to spite me now that I had called off the trip for good.

It didn't. The usually serene Rattlesnake Valley had been transformed into a cold, violent place. The wind howled, whipping up snow and reducing visibility to a few hundred feet—prohibiting travel in any form, and making simply going outside an unpleasant if not dangerous proposition. I was going nowhere fast.

Resigned to being stuck in the house for the foreseeable future, I began strategizing ways to fight back against the inevitable onset of cabin fever. Read a book, I thought. But I couldn't bring myself to read; I knew I'd spend the next four months of school reading. Then my planning was abruptly interrupted by a loud thump on the side of the house. What happened next was a snow day miracle.

The bird feeder on my kitchen window had been taken over by six large birds. "Evening Grosbeaks!" I shouted excitedly. I watched as the flamboyant yellow birds voraciously dug through the sunflower seeds with their massive beaks. Overcome by curiosity, I inched closer to the window to get a better look, but I lacked the stealth required, scaring away my visitors. My heart dropped. But disappointment soon gave way to bliss when I discovered over twenty more grosbeaks in a nearby cottonwood tree.

Photo by Mike Canetta

I quickly opened the window and put out another pound of seed. They flocked to the feeder, trampling on each other to get a piece of the pie. I had little doubt that these winter residents of the nearby coniferous forest were driven down by the harsh weather in search of food. Like most songbirds that stick around Montana for the colder months of the year, Evening Grosbeaks rely almost exclusively on seeds. During severe snowstorms, when the ground and trees are plastered with snow, a bird feeder represents not only the solution to optimal foraging, but a lifeline.

Within minutes, the seed was gone. I put out more, and they consumed it in similar fashion. My backyard looked like an avian refugee camp. As daylight waned, I put out one last large helping of seeds in hopes that the birds would remain for longer.

The next day, I awoke to identical conditions. The ground was now covered with well over a foot of snow, and it showed no sign of letting up. I groggily walked to the kitchen to start a pot of coffee, and when I opened the blinds, I was stunned. The Evening Grosbeaks had stuck around, but they were now joined by Black-capped Chickadees, Dark-eyed Juncos, House Finches, Pine Siskins, White-breasted Nuthatches, and Cedar Waxwings, all waiting on nearby trees for me to refill the feeder. When a bird finds a plentiful food source, it does not remain a secret for long. Instinctually, birds will follow others to these hotspots.

Photo by Katy Manley

My backyard looked like an avian refugee camp.

The instant I put more seed out, the grosbeaks returned, using their size to outmuscle any ambitious challengers. This was resource competition in its purest form. I held my breath as one daring Pine Siskin attempted an ill-advised *coup d'état*, nearly getting impaled for its mutiny.

The grosbeaks, satiated at last, retreated to nearby trees for a mid-day siesta. Once they were out of the way, a flock

Junco photo: U.S. Fish and Wildlife Service

Above: Evening Grosbeaks in a cottonwood tree, waiting for the next course.

Opposite page: Evening Grosbeaks congregate at the bird feeder.

Photo by Eugene Beckes

From left:
Black-capped Chickadee,
Dark-eyed Junco,
Evening Grosbeak

Photo by Mike Canetta

of chickadees invaded. In contrast to the rambunctious grosbeaks, these little birds were saints. They lined up in orderly fashion along a fence post, and then proceeded to arrive at the feeder one at a time. Champions of optimal foraging, each chickadee methodically sifted through seeds, picking up several before selecting the one that was just the right weight. Once it found its perfect meal, the bird would fly off with its bounty, making way for the next hungry chickadee. As I gazed in amusement, I couldn't help but think I was watching nature's version of musical chairs: musical chickadees.

The day progressed and the snow continued to fall, now piled at least two feet deep. The birds raided the feeder relentlessly, stocking up in a storm that had no end in sight. In between trips to the feeder, the birds remained eerily still, moving only occasionally to shake the heavy snow off their fragile feathers. The chickadees no longer resembled their elegant selves, puffed up to twice their normal size to insulate themselves from the falling temperatures. What I was witnessing was something between carefully calculated action and desperation. My backyard was literally a case study in avian behavioral ecology. As night fell, I wondered if this story would end with their demise.

When the snow stopped on January 20th, the birds disappeared, their departure as abrupt and unexpected as their arrival two days earlier. Having been snowed in for forty-eight hours, sunshine was a welcome sign, and the weary birds were undoubtedly restless and ready to move. I reflected on my anguish two days earlier when I realized the storm would inconvenience my plans. I laughed at the irony: what was merely an inconvenience for me was to them a threat to survival, one I enjoyed helping defend them against. Getting snowed in ended up being a worthwhile adventure. Sure, there were no inside-out pajamas or snow forts. But the birds had proven to me that, even as an adult, I can still enjoy the pleasures that come with a good blizzard.

—Mike Canetta is a graduate student in the Environmental Studies program at the University of Montana. He spends his summers in Grand Teton National Park working as a park ranger naturalist.

Educator of the Year Award: Animal Wonders, Inc.

Jessi and Augusto Castañeda founded Animal Wonders in May 2008 with the dream of bringing a unique form of environmental education to Montana. They combined their passions of rescuing displaced exotic animals with performing live animal presentations to create Montana's very own Zoo to You. Jessi and Augusto based their educational programs in the knowledge and experience they gained from years of working in educational facilities with animals of all species.

Over the last several years Animal Wonders' school programs have incorporated Montana's science standards and have grown to include over 40 species of animals from the native Red Fox to the exotic Crimson-Rumped Toucanet. Whether Jessi and Augusto are in a living room surrounded by an enthusiastic birthday party or in a classroom full of excited students, these wildlife educators always put education over entertainment, though it never seems to be anything but fun. Thank you, Jessi & Augusto!

Volunteer of the Year Award: Vicki Cox

Vicki has been enthusiastically involved with MNHC since taking the Montana Master Naturalist Course in the spring of 2010. She's incredibly generous with her time in many ways—whether doing behind-the-scenes preparations at MNHC or being out in the field or classroom with our Visiting Naturalist kids. She has been one of our most dependable Visiting Naturalist in the Schools field trip volunteers, cheerfully leading stations on multiple field trips each spring and fall, and willing to fill in on short notice, too. She has an infectious energy when she teaches, and the kids respond to her eagerly. Vicki is upbeat and energetic, and we are so grateful to have her volunteering at MNHC. Thank you, Vicki!

All photos by Merle Loman

Ellen Knight "Sense of Wonder" Classroom

Ellen Knight (right) with MNHC naturalist Christine Wren

MNHC has a happy challenge: our programs have completely outgrown our existing classroom space, so we are remodeling unfinished space in the middle of our building to create a new room that can accommodate up to 75 students and/or teachers. We plan to bring new video conferencing technology to this classroom that will allow us to reach teachers and students all over the state with our flagship programs such as Visiting Naturalist in the Schools.

We will be naming our beautiful new space the Ellen Knight "Sense of Wonder" Classroom; we can think of no one who better exemplifies the passion for nature that we strive to pass along to everyone who comes through our doors. Ellen was, in fact, one of the founding members of MNHC; she served on the Board for many years; and now continues to be deeply involved in multiple ways. We are so grateful for her vision, passion, and compassion, and grateful, too, to get to see the intricacies of nature through her eyes. Ellen, you are an inspiration to us all!

Fall Celebration A Success!

Once again, we'd like to convey our sincere thanks to everyone who attended MNHC's Fall Celebration and Auction at the DoubleTree Hotel on October 5th. Some 225 people helped us raise a generous amount in support of nature education for children and adults. We are especially grateful for your outstanding response to our Ellen Knight "Sense of Wonder" Classroom challenge, which will enable us to create a new, ample classroom to better reach teachers, students, and the community in 2013 and beyond. And, of course, we couldn't have done it without the following businesses and individuals whose generosity and hard work made the whole event possible. (Please accept our apologies for any missed names.) ***Thank you!***

Photo by Merle Loman

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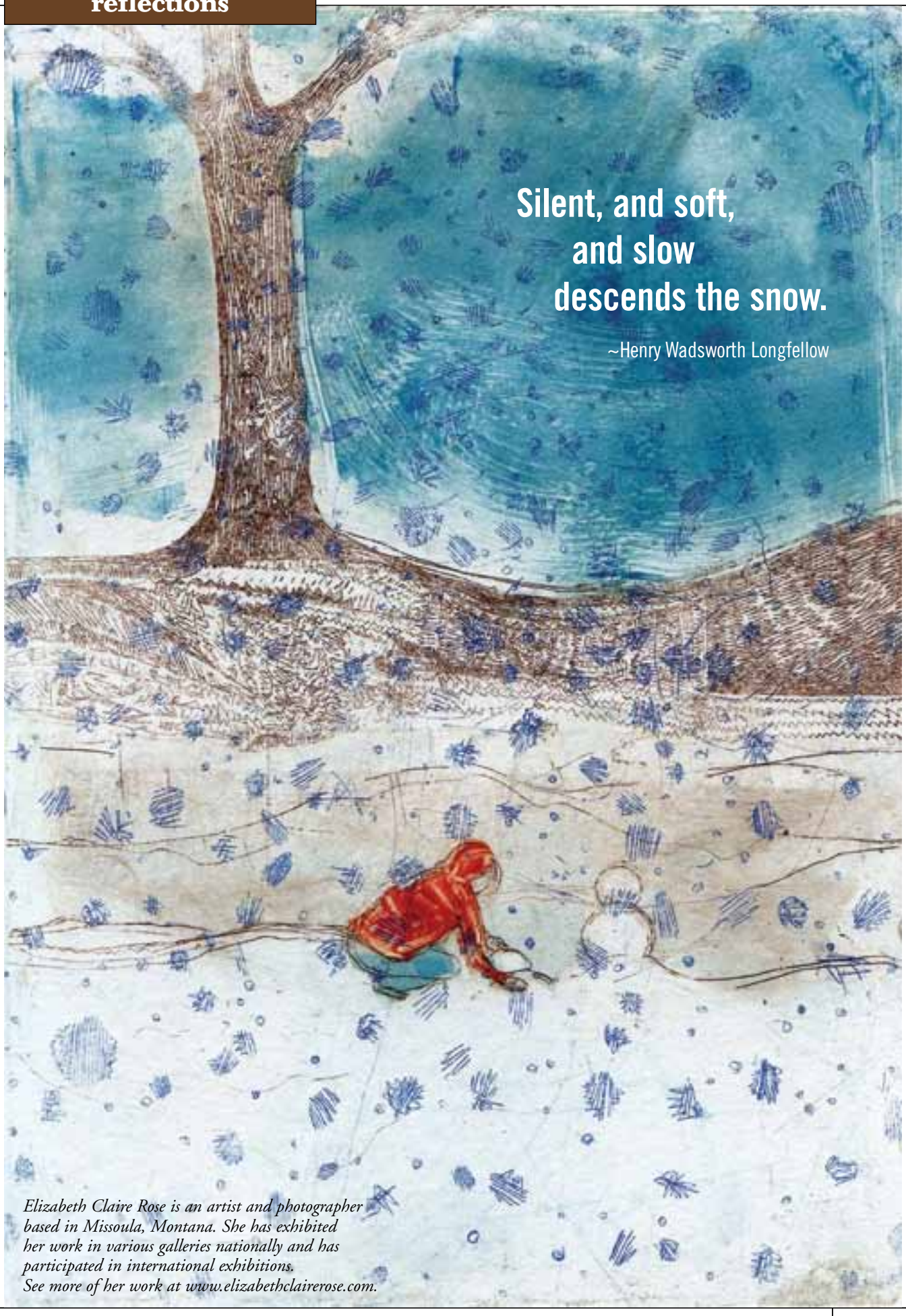

Elizabeth Claire Rose is an artist and photographer based in Missoula, Montana. She has exhibited her work in various galleries nationally and has participated in international exhibitions. See more of her work at www.elizabethclairerose.com.

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