

MONTANA

Fall 2012

# Naturalist

## Black-footed Ferrets

Elfin Wood

Dreaming of Butterflies

Cloud  
Watching  
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

# MONTANA Naturalist

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**Cover** — A cumulonimbus storm cloud rolls in over the plains near the Charles M. Russell National Wildlife Refuge in northeast Montana.

Photo by Robin Poole. Check out more photography on his website, [www.robinsnaturepics.smugmug.com](http://www.robinsnaturepics.smugmug.com).

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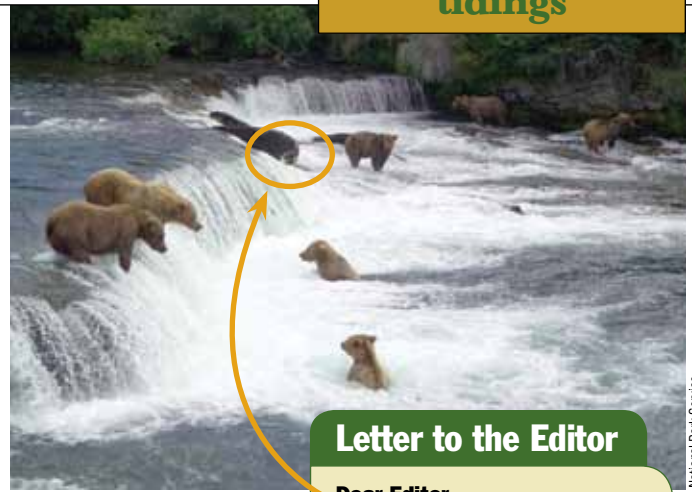
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**T**his issue focuses on two of the rarer small mammals

in our state: northern bog lemmings, considered a species of concern in Montana, and black-footed ferrets, once thought extinct. It was human activity—poisoning the prairie dogs that are the ferrets' primary food source—that caused the decline in ferret populations in the late 19th and early 20th centuries, and it is now human intervention that is helping to bring these curious, bright-eyed animals back.

It is a heavy burden, this potential to destroy or preserve, this unsolicited task of being stewards of the world around us. Our actions influence the non-human world, and thus we are responsible for the results of those actions, both the positive and negative. Too often, it seems, the results are negative: extinction of passenger pigeons, dodos, and countless other creatures; pollution of our air and water; climate change.

What, then, do we do? At the Montana Natural History Center, we work to educate children and adults alike so that they may not only appreciate and understand nature, but responsibly steward it as well. We believe in the good that people can do: teaching children to love birds, as 4th-grade teacher Carrie Brunger does; bringing the beauty of butterflies and millipedes and other invertebrates to the community, as the Missoula Butterfly House and Insectarium does; hiking in the mountains to move beyond our safety nets and experience the raw loveliness of wild places, as writer Beth Baker and so many others in our community do.

So as we move into another golden Montana autumn, may we consider our potential to have a positive influence, to act in ways that are good not only for us but for all the other creatures in our community and beyond.

**Allison De Jong**  
*Editor*

adejong@MontanaNaturalist.org

## Letter to the Editor

**Dear Editor,**

Thanks for the very nice job you guys do with *Montana Naturalist*. Every issue is like opening a Christmas gift. I am sure you are starting many fires in the souls and imaginations of young people who experience your magazine. Nice job!

I read the Water Ouzel article with interest, the Dipper being one of my favorite birds. Eugene Beckes captured the essence of the bird well, and when he wrote "Most Dippers pick their nest sites carefully," it brought back memories of my vote for best all-time Ouzel nest sites. It was (and I presume still is) on the underside of a prominent rock in the middle of the Brooks River Falls in Alaska. The parents would duck in and out tending young in the midst of a dozen or more hungry Alaskan Brown (Grizzly) bears who came to the fabled spot to fish for salmon. The rock is shown in the attached photo, and you can just see the spot on the downstream side of the rock near the waterline that contains the nest site.

Enjoy!

**Rick Potts, Refuge Manager**  
Charles M. Russell National  
Wildlife Refuge  
Lewistown, Montana

# Ferrets'

## A Trip to the Charles M. Russell National Wildlife Refuge

**R**andy Matchett looks like an aging cowboy, with his jeans and flannels, his confident truck-handling in the spring mud, his stoop and his handlebar moustache and his wide-brimmed hat with a single feather from a red-shafted flicker tucked into the band. Even his soft and thoughtful way of speaking suggests the part, but the actual words reveal him as a dedicated biologist. Since 1994 his steady presence has anchored the reintroduction program for black-footed ferrets on the Charles M. Russell National Wildlife Refuge.

Each year for Randy revolves around ferrets. His New Year comes in early autumn, when the ferret kits are robust but still staying close to their mothers. That's when the newest generation is rounded up, microchipped, and vaccinated against the sylvatic plague, one of the major threats to ferret survival. During the winter he keeps an eye on his prairie dog towns from the air while doing other Refuge work like surveying grouse and elk. In the summer, he does special projects, leading gangs of grad students and fellow researchers as they dust prairie dog burrows with flea powder and test new vaccines. Spring brings an intense population survey to see which ferrets have survived the winter and where they're likely to den and raise their own kits, prep work for next fall. That's where Mike Snyder and Hank Fischer and I joined in.

Mike and I were the lucky winner and runner-up, respectively, in bidding for this trip at last fall's annual fundraising auction for the Montana Natural History Center. Hank agreed to put his extensive knowledge of

Montana's wildlife, along with his impressive organizational and cooking skills, to work guiding us. We would spend a weekend with Randy, searching for ferrets as the ferrets searched for mates. For two days, we'd join Randy in devoting ourselves to a species that has faced down disaster even to the point of being declared extinct and then returning to life. We'd live on their turf, by their schedules, and learn something about their world.

Black-footed ferrets have distinctive dark facial masks



Fifteen black-footed ferrets live on the Charles M. Russell, all descended from a small captive breeding program established in 1985 as sylvatic plague ravaged the species' last known stronghold in Wyoming. Randy monitors them from a base called, prosaically enough, Ferret Camp: a collection of trailers 20 miles from the nearest human habitation but smack in the middle of a heavy-traffic prairie dog town. Visitors carry in their own food and water, but the Refuge provides the spectacular memories: long views over ancient buffalo jumps, sage grouse dancing on their

leks at dawn, long-billed curlews silhouetted by the sunset. And, from midnight until dawn, the search for the nocturnal ferrets.

A ferret sighting starts with a glint of green eye-shine in the spotlight attached to Randy's truck. Next, as he stops sweeping the light and fixes it on our target, we see a blunt fuzzy head, with small round ears and shining eyes in a black mask. The ferret might

**Ferrets are curious animals, explorers, willing to take risks; they've had to be to survive.**

disappear down a prairie dog hole at this point, or it might venture above ground, giving us good looks at its serpentine body, elongated neck, and stubby dark legs. If we get close enough we might see a pink maw and slivers of white teeth, ready to take a prairie dog by the throat and choke the life out—but also rather adorable. This is the moment when we forget the cold,

forget that it's two in the morning, forget the many cups of coffee we've slurped, and focus on our target.

We watch as the ferret—usually a she, since females outnumber the males in the CMR population—dashes across the short, sparse grass to the next prairie-dog burrow to the left. She enters, but stays down for only a few minutes, and then she's up to repeat the performance, out of the edge of the spotlight beam.

"Left! Left!" Mike and I yell, and Randy swivels the spotlight until it picks

## The Rollercoaster History of the Black-footed Ferret

**1851** - First description of the black-footed ferret in Western science: *Viviparous Quadrupeds of North America* by John James Audubon and John Bachman.



**1860s-1960s** - Pest control and development destroy prairie-dog towns. Ferrets decline; some biologists regard them as extinct by the 1950s.

**1964** - Isolated colony of ferrets discovered in South Dakota, sparking the first long-term scientific study of the species.

**1972** - Sylvatic plague in South Dakota. Nine ferrets trapped for captive breeding. No kits from this attempt survive.



**1974** - Last wild ferret sighting in South Dakota.

**1979** - Last captive ferret dies; black-footed ferret presumed extinct.

# World:

By Carrie Laben

up green eye-shine again. She heads down another hole.

"Ok," Randy says, and locks the handle that holds the beam in place. We all emerge from the truck, not quite as gracefully as the ferret emerged from her hole. Randy picks up the scanner box from the back.

Our shadows stretch ahead of us as we walk to the hole. The ferret raises her head again—up periscope—and hesitates. Ferrets are curious animals, explorers, willing to take risks; they've had to be to survive. She looks

at us, then ducks down, then back up, as we draw closer. Only when we're within a few yards does she disappear and stay down.

At the hole's edge, we watch for a minute. Sometimes a ferret will stick out a nose, hoping to get a better look at us, creating a photo op. Then Randy opens up the scanner box, a black plastic object that looks a lot like a cheap tool chest. Inside is the ferret scanner: a metal loop just about the size of the entrance to the average black-tailed prairie dog burrow, wired to a small digital read-out screen nestled in waterproof foam rubber inside the chest. When a ferret passes through the loop, the screen displays the unique number from the microchip that the ferret carries subcutaneously.

Once the loop is in place, we leave the scanner box—it's marked with red reflective tape to make it easy to find again, although Randy also takes a GPS reading just to be sure—and pile back into the truck. Randy puts it in gear and returns to sweeping the spotlight across the night prairie, watching for green eye-shine, for more ferrets. Somehow, despite the smallness of the population, there is always one more ferret to be found. They stay on the move.

It is spring, after all, and since the Pleistocene black-footed ferrets have searched the spring nights for mates and plump prairie

dogs. That they now do it with microchips riding just under the skin, that they do it only because Randy and other dedicated researchers have devoted years to captive breeding and pre-release conditioning and battling plagues and driving through long cold nights with a thermos of coffee and spotlight—the ferrets don't seem diminished by any of that.

So we'll do our part until the dawn breaks over eastern Montana. Randy will do it for the rest of the breeding season, then again come autumn, shepherding ancient rhythms with modern technology. And in the face of disease and predators and habitat loss, in a world that has written them off more than once, the ferrets will watch the night with shining eyes for one more spring. 🦦

*Carrie Laben hails from New York, but is now studying for an MFA in Creative Writing at the University of Montana. She has been fascinated by black-footed ferrets for as long as she can remember.*

**Members of the weasel family, black-footed ferrets have a long body and tail, short legs, and rounded ears**



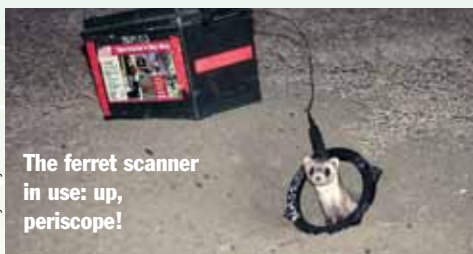
**A ferret's eyes shine green from a prairie dog burrow**



**Setting up the ferret scanner**



**The ferret scanner in use: up, periscope!**



**1981** - Shep, a ranch dog, brings a recently-deceased ferret to his owners, the Hogg family of Meeteetse, Wyoming. Small colony of surviving ferrets is located nearby.

**1984** - Meeteetse population peaks at 129 individuals.

**1985** - Sylvatic plague in Meeteetse. Second attempt at captive breeding initiated.

**1987** - Ferrets extinct in the wild - again. Two litters mark the species' first captive breeding success.

**1991** - Black-footed ferrets reintroduced to the wild in Shirley Basin, Wyoming.

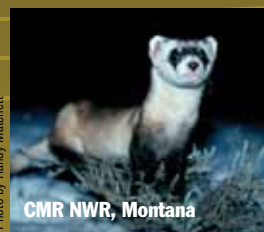


Wyoming

**1994** - Charles M. Russell NWR hosts Montana's first population of reintroduced ferrets.

**1997-2008** - Three additional release sites designated in Montana.

**2012** - Roughly 1,000 ferrets in the wild at 19 reintroduction sites. In Montana, only the CMR population survives.



CMR NWR, Montana





Northern Bog Lemmings:  
*The Least  
Known Rodent*

by Andrea Stephens



**A northern bog lemming on a  
mat of sphagnum moss, both a  
source of food and its primary  
habitat in Montana.**

Photo by Jim Reichel



Photo by Sherry Wood

get a better look: what were the chances this could be a northern bog lemming? This animal has taken on a near-mythical status for me over the past 20 years, since I've never found an actual lemming, only possible scat piles. Despite knowing how unlikely it would be, I secretly hoped the nervous little creature on our sphagnum hummock might be the grail at last! After talking with the folks in our region who know the most about bog lemmings, I can share the news I learned about them.

Related to true arctic lemmings, northern bog lemmings (*Synaptomys borealis*) are a boreal species, meaning they live in the far north (Boreas was the Greek god of the north wind). They are the size of a large mouse, have a very short tail and unusually long, loose fur. Northern bog lemmings are active year-round during both day and night, so it isn't beyond the realm of possibility that we saw one in the middle of the afternoon. From the few specimens that have been collected in the state, we know they eat moss, especially the super-absorbent type called sphagnum that my students and I had been slogging through. In fact, sphagnum-filled wetlands are the primary habitat for bog lemmings in Montana. We know owls and snakes eat them: someone found a lemming skull in a boreal owl pellet near Wisdom; another biologist discovered one that had been regurgitated by a garter snake in the Bitterroot. Pine marten researchers in Glacier National Park have found lemming remains in marten scat.

At the time of our encounter, it didn't seem prudent to collect an animal that could be quite rare, so I took only two pictures and hoped they might reveal something later on. Unfortunately, the photos I hurriedly snapped of the hind end of our little guy turned out to be useless in positively identifying it. Despite the fact that the rodent happened to be in classic lemming territory, atop a deep mat of sphagnum moss overlying many feet of mucky peat, we couldn't jump to conclusions. We would have had to dismantle its jaw and inspect its molar teeth and incisors to know for sure it wasn't a montane heather vole, a look-alike species with a slightly longer tail and a wider ecological niche that can overlap the lemming's preferred habitat of mossy wetlands.

In North America, northern bog lemmings are found all across Alaska and Canada, but are known in the western U.S. from only a handful of sites in Washington, Idaho and Montana. They appear to be a relict population in our neck of the woods; apparently they were more abundant during the most recent glacial period, but their populations became isolated here probably as a result of a warming trend between 3000 and 6000 years ago.

As I suspected, it would be a statistical shock to actually encounter a bog lemming out of the blue. Of all the nights researchers have set out their traps in Montana looking for small mammals in general and northern bog lemmings in particular, only about 30 of the animals have ever been found! The very first one was identified on the west side of Glacier Park in the early 1950s. Two biologists looking specifically for lemmings in the Swan in 1993 didn't catch a single one despite 1670 trap nights of effort (a "trap night" is one trap set out for 24 hours).

This rarity makes it challenging to observe the animal and has led to the assignment of a "sensitive species" status by the Forest Service as well as a "species of special concern" status by the Montana Natural Heritage Program. Northern bog lemmings just don't occur in high numbers in Montana—at least not during the last several thousand years—and as a result we don't know much about their ecology. One researcher suggested they are "the least known rodent in the United States": certainly a major strike against us just happening to stumble across one on a September afternoon.

It turns out, however, if we did want to see a lemming, Montana would be a decent bet. Our state has the highest number of reported northern bog lemming sites of any place in the lower 48! And Montana has twice as many lemming capture sites as the other two western states with known lemming populations, with a large percentage clustered in Missoula and Flathead counties and Glacier National Park. The Swan, by all accounts, offers excellent habitat for lemmings since it contains such a high density of wetlands compared to the rest of the state.

Sphagnum moss is not a plant you will run across frequently in Montana, yet it occasionally finds a foothold growing atop other plant material in the Swan's unusual boreal wetlands called peatlands. Peatlands themselves are not commonplace habitats in Montana, but because of the Swan's unique geology and groundwater, there are a dozen or so in the valley. And a sphagnum-dominated peatland is exactly where a Gonzaga University biology professor reports she found the Swan's first bog lemming in the summer of 2006 after thousands of trap nights.

The Swan is near the southern edge of the northern bog lemming's boreal distribution; apparently the presence of peatlands and sphagnum moss offer this creature a home here, just on the fringes of where it is capable of surviving. To my great disappointment, I'll never know if the little rodent scurrying along beneath our feet in the sphagnum was indeed a northern bog lemming. But the Swan's wetlands appear to be one of the best places to keep looking—and I will be. 🦊

*Andrea Stephens has worked as a naturalist, field instructor and Education Program Coordinator for the last 15 years at Northwest Connections in the Swan Valley. She likes exploring for critters in the places other people call swamps.*

*It turns out, however, if we did want to see a lemming, Montana would be a decent bet. Our state has the highest number of reported northern bog lemming sites of any place in the lower 48!*



**Carnivorous English sundew (*Drosera angelica*), a plant found in typical lemming habitat in the Swan Valley**

Photo by Beth Hahn, USFS

# Why Tiger Salamanders are Awesome

By Alyssa McLean

One of MNHC's  
curious, lively, and  
as-yet-unnamed  
tiger salamanders

(and why you should come  
visit MNHC to see them!)

The Montana Natural History Center has two new critters! Dr. Erick Greene has generously donated two tiger salamanders (*Ambystoma tigrinum*) who are happily living in a terrarium in our exhibit hall. The salamanders were part of a research project and were unable to be released back into the wild.

One third of the salamanders found in the world are here in North America! Salamanders are amphibians, in the class *Amphibia*, whose living forms include frogs, salamanders, newts, and caecilians. Salamanders need to keep their skin moist at all times, so many spend most of their lives underground in moist burrows in drier ecosystems where water is lacking. Along with producing a mucous layer to keep their skin protected and moist, salamanders have glands that secrete poison, helping to make them unpalatable to predators. If a salamander does happen to be attacked by a predator, most are capable of regenerating their lost limbs, including tails and toes, within a few weeks.

Salamanders are nocturnal creatures, and a few species, such as the arboreal salamander (*Aneides lugubris*), found in California, even have teeth. In Montana, we have four species of salamanders: tiger salamanders, long-toed salamanders (*Ambystoma macrodactylum*), Idaho giant salamanders (*Dicamptodon aterrimus*), and the Coeur d'Alene salamander (*Plethodon idahoensis*). If you're exploring around the Missoula area, be on the lookout for the long-toed salamander in wet areas.

Tiger salamanders are native to Montana, but you won't see them in western Montana. They make their homes in the eastern part of the state in prairie ecosystems. They are the most wide-ranging species of salamander in North America and have adapted to live in a variety of habitats. They breed in any water

available that has no fish, including stock tanks, ponds, lakes, springs, and any source of intermittent water. After laying eggs, the adults either retreat to upland burrows, or stay in the general vicinity of the pond. Eggs take two to five weeks to hatch, and metamorphosis takes anywhere from two to twenty-four months, a variation attributed to temperature and not food availability.

While most tiger salamanders lose their gills and develop lungs, some actually stay in the water and retain their external gills. This occurs where the area surrounding the water source is dry and inhospitable to the salamanders. Although they stay in the form of juveniles (a state called neoteny) and don't complete metamorphosis,

salamanders. The two at the Montana Natural History Center are fed six crickets each once a week—our estimate of what they would catch in the wild based on their size. Tiger salamanders can potentially grow to 14 inches in length! Most, like ours, remain at a modest six to eight inches. Although there are regional differences in tiger salamander coloration, most of those you will see in Montana have a dark background with greenish yellowish splotches or stripes. Tiger salamanders are relatively long-lived, and have an average lifespan of 12-15 years in the wild.

As with all amphibians, salamander populations are decreasing due to habitat loss and habitat fragmentation.

Chytridiomycosis, a disease caused by the aquatic fungal pathogen *Batrachochytrium dendrobatidis*, is also a cause of salamander decline, although salamanders show more resistance than frogs to this pathogen. We hope that with our two salamanders, MNHC can continue to educate visitors in what they can do to help ensure that salamanders stay healthy in Montana. 🐸

## MNHC Tiger Salamander Naming Contest!

For details,  
see page 12



Note the external gills of the tiger salamander larva

they become sexually mature and can still breed. If environmental conditions improve, they may complete metamorphosis and develop into the adult form with lungs.

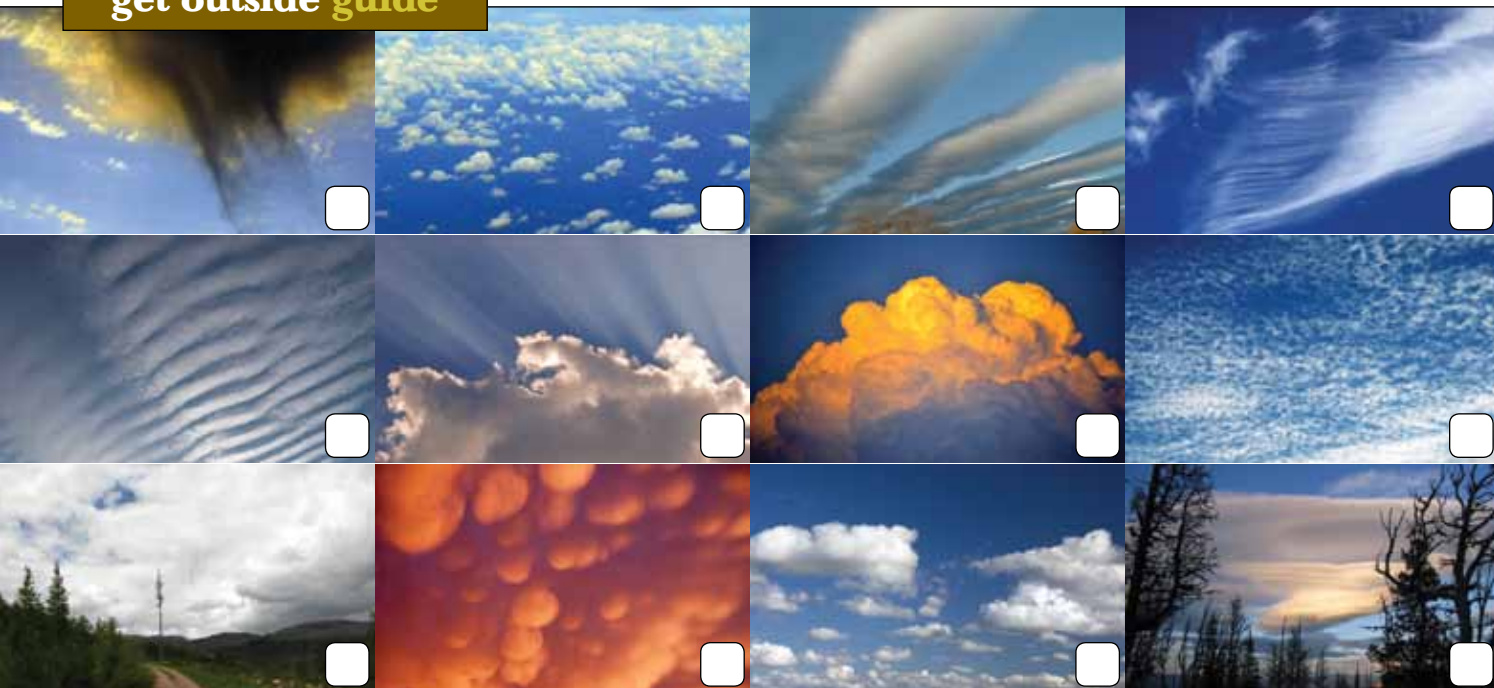
Tiger salamanders are carnivores and will feed on anything they can get into their mouths, including worms, frogs, insects, small mammals and, if they can catch them, other

Alyssa McLean has worked as an educator and field technician in New Hampshire, Texas, Utah, Massachusetts, and Montana, where she's currently employed as a naturalist at the Montana Natural History Center. Alyssa loves the outdoors and just about any critters she finds, and enjoys poking around looking for salamanders with her husband Chris.

MNHC Photo

Image courtesy of Matthew Ignoffo





## What's That Cloud?

**C**louds. They're easy to see, often beautiful, and always changing from one moment to the next. We observe clouds nearly every day, but do most of us know what we're looking at? Read on to learn a little about various types of clouds and cloud features, then test your knowledge with our cloud quiz!

**Can you match the cloud to its photo?** Write the corresponding letter in the box on the photo.

There are 10 basic cloud types; here are five:

**A. Cumulus:** These are the white, puffy clouds that we often associate with fine weather—big cottonballs in the sky.

**B. Cumulonimbus:** Most of us know what these are: storm clouds. These enormous clouds can tower several miles into the air, and can bring rain, hail, thunder and lightning—and, if several of them come together to form a supercell storm, they may create tornadoes.

**C. Stratocumulus:** These are low-level clouds, often patchy with minimal sky showing through, and they generally cover a large area to create an overcast, whitish-grey sky.

**D. Cirrus:** These high-level clouds are wispy and ephemeral, and form into a variety of interesting shapes, including vertebratus (which looks like a fish skeleton, with wisps forming

perpendicular to a central “spine”) and fibratus (which looks like combed hairs, each filament individual and thin). Which shape is the cirrus cloud in the picture?

**E. Cirrocumulus:** Another high-level cloud, these resemble rice grains or miniscule cotton balls spread across the sky. The clouds appear small because they are so high—some as far as six or seven miles above ground.

The other five types of clouds are **stratus**, **altocumulus**, **altostratus**, **cirrostratus**, and **nimbostratus**. And this is where it gets really interesting! Aside from the 10 cloud types, there are a number of cloud varieties as well as myriad features that cloud types exhibit:

**F. Lenticularis:** These oddly rounded clouds can look like flying saucers. They have a distinctive lens or disc shape, and sometimes pile on top of one another like a stack of dishes.

**G. Castellanus:** These poofy clouds can have a cottonball look from below, but from above they rise up in bumpy “turrets,” like miniature castles in the air—a result of unsettled air and a sign of possible stormy weather to come.

**H. Undulatus:** As the name suggests, this cloud variety undulates in a wave pattern across the sky, looking like the surface of the ocean or the ripples on a sand dune.

**I. Radiatus:** These distinctive clouds form in long parallel lines that stretch (and appear to converge) at the horizon. They are sometimes called “cloud streets.”

**J. Mamma:** One of the most unique (and unsettling to observe) cloud features, mamma clouds look soft and bulbous and often appear after stormy weather has passed by.

**K. Virga:** This occurs when rain falls from a cloud but the moisture evaporates before it reaches the ground. Virga looks a little like jellyfish trailing their many hanging tentacles.

**L. Crepuscular Rays:** They have a fun name and are always a delight to see, and occur when the sun streams through the clouds, creating a “sunbeams from heaven” look.

To learn about even more cloud types, species, and formations, check out the Cloud Appreciation Society's website, with its detailed descriptions and wonderful pictures ([www.cloudappreciationsociety.org](http://www.cloudappreciationsociety.org)).

**Answer:**  
**FIRST ROW:** K. Virga, G. Castellanus, I. Radiatus, D. Cirrus  
**SECOND ROW:** H. Undulatus, L. Crepuscular Rays, B. Cumulonimbus, E. Cirrocumulus  
**THIRD ROW:** C. Stratocumulus, J. Mamma, A. Cumulus, F. Lenticularis

**August 30th Native Plant Gardens Program,** 5:30-7:30 p.m. Seed Collecting. \$5 suggested donation, MNHC members free.

**September Gallery** all month. **Sam Case: Mirrors on Wood.**

**September 5 Volunteer Naturalist Training,** 4:00-5:00 p.m. Introduction to volunteering with the Visiting Naturalist in the Schools Program. No prior experience needed.

**September 6 miniNaturalists Pre-K Program,** 10:00-11:00 a.m. \$3; \$1 MNHC members.

**September 6 Native Plant Gardens Program,** 5:30-7:30 p.m. **Soup and Spud Fest** with Beth Judy, Plant Detective. \$5 suggested donation, MNHC members free.

**September 8 Saturday Discovery Day,** 9:00 a.m.-5:00 p.m. Crystals and Minerals (location TBA). \$35; \$30 MNHC members.

**September 12 Evening Lecture,** 7:00 p.m. Montana Mammals with Kerry Foresman. \$4 suggested donation; MNHC members free.

**September 19 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 October VNS school field trips. No prior experience necessary.

**September 19 Glacial Lake Missoula Meeting,** open to the public, 3:30-4:30 p.m.

**September 19 Glacial Lake Missoula Field Trip,** 5:00 p.m. Hike to the Lake Elevation Marker on Mt. Jumbo. \$4 suggested donation.

**September 20 miniNaturalists Pre-K Program,** 10:00-11:00 a.m. \$10; \$6 MNHC members.

**September 20 Native Plant Gardens Program,** 5:30-7:30 p.m. **Basket Weaving and Plant Identification.** \$5; \$3 MNHC members.

**September 22 Saturday Kids Activity,** 2:00-3:00 p.m. Funky Fossils. \$3; \$1 MNHC members.

**September 26 Evening Lecture,** 7:00 p.m. **Climate Change and Elk** with Dr. John Maron. \$4 suggested donation; MNHC members free.

**September 29 Saturday Discovery Day,** 11:00 a.m.-2:00 p.m. **Art and Science Nature Walk.** \$5 suggested donation; MNHC members free.

**September 29 Project Learning Tree Workshop** at the Lee Metcalf Wildlife Refuge, 9:00 a.m.-4:00 p.m. \$35; \$30 MNHC members.

**October Gallery** all month. **Merle Loman: Nature Photography.**

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

**October 4 Native Plant Gardens Program,** 5:30-7:30 p.m. **Backyard Birds and Birdfeeders.** \$5 suggested donation; MNHC members free.

**October 5 Fall Celebration and Auction,** 5:00-9:00 p.m. at the DoubleTree Hotel. Bid on exciting trips and experiences in our live and silent auction, enjoy a delicious dinner, and reflect with us on a year of accomplishments and fun.

**October 10 Evening Lecture,** 7:00 p.m.

**The Surprising Role of Microbes** with Dr. John McCutcheon. \$4 suggested donation; MNHC members free.

**October 13 Saturday Discovery Day,** 9:00 a.m.-3:00 p.m. **Fall Foray.** \$15, \$10 MNHC members.

**October 17 Glacial Lake Missoula Meeting,** open to the public, 3:30-4:30 p.m.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<b>MNHC Hours: Tuesday-Friday, noon - 5 p.m. and Saturday noon - 4 p.m.</b> <b>Admission Fees:</b> <b>\$2/adults, \$1/children under 12 (maximum \$6)</b> <b>Free/children under 3 and MNHC members</b>				 <b>Native Plant Garden Program. Seed Collecting,</b> 5:30-7:30 p.m. <b>30</b>		 <b>September Gallery, all month. Sam Case: Mirrors on Wood</b> <b>1</b>
<b>September</b>						
2	3	4	5	 <b>Volunteer Naturalist Training. Introduction to volunteering,</b> 4:00-5:00 p.m. <b>6</b>	7	 <b>Saturday Discovery Day. Crystals and Minerals,</b> 9:00 a.m.-5:00 p.m. <b>8</b>
<i>Pikas cut and dry grass for winter</i>  <small>Alfred Viola, Northeastern University, Bugwood.org</small>		9	 <b>Evening Lecture. Montana Mammals,</b> 7:00 p.m. <b>12</b>	 <b>miniNaturalists,</b> 10:00-11:00 a.m.  <b>Native Plant Gardens Program. Soup and Spud Fest,</b> 5:30-7:30 p.m. <b>13</b>	14	15
		16	 <b>Volunteer Naturalist Training. VNS Field Trip Training,</b> 4:00-6:00 p.m.  <b>GLM Field Trip.</b> 5:00 p.m. <b>19</b>	 <b>miniNaturalists,</b> 10:00-11:00 a.m.  <b>Native Plant Gardens Program. Basket Weaving &amp; Plant ID,</b> 5:30-7:30 p.m. <b>20</b>	21	 <b>Saturday Kids Activity. Funky Fossils,</b> 2:00-3:00 p.m. <b>22</b>
23	24	25	26	 <b>Evening Lecture. Climate Change and Elk,</b> 7:00 p.m. <b>27</b>	28	 <b>Saturday Discovery Day. Art and Science Walk,</b> 11:00 a.m.-2:00 p.m.  <b>Project Learning Tree Workshop. 9:00 a.m.-4:00 p.m.</b> <b>29</b>
<b>October</b>						
30	1	2	3	 <b>miniNaturalists,</b> 10:00-11:00 a.m.  <b>Native Plant Gardens Program. Backyard Birds &amp; Birdfeeders,</b> 5:30-7:30 p.m. <b>4</b>	 <b>October Gallery, all month, Merle Loman: Nature Photography.</b>  <b>Fall Celebration and Auction,</b> 5:00-9:00 p.m. <b>5</b>	6
 <small>Roy Wood, VNP Photo</small>		7	 <b>Evening Lecture Series. The Surprising Role of Microbes,</b> 7:00 p.m. <b>10</b>	 <b>miniNaturalists,</b> 10:00-11:00 a.m.  <b>Native Plant Gardens Program. Plants &amp; Skulls Costume Workshop,</b> 5:30-7:30 p.m. <b>11</b>	12	13
		8	 <b>GLM Meeting.</b> 3:30-4:30 p.m. <b>17</b>	 <b>miniNaturalists,</b> 10:00-11:00 a.m.  <b>Native Plant Gardens Program. Plants &amp; Skulls Costume Workshop,</b> 5:30-7:30 p.m. <b>18</b>	19	20
21	<i>Snakes enter winter dens</i>	22	 <b>Evening Lecture Series. Insect Facts and Snacks,</b> 7:00 p.m. <b>24</b>	25	26	 <b>Saturday Kids Activity. Night Frights</b> 2:00-3:00 p.m. <b>27</b>

**Programs and events held at MNHC's new home - 120 Hickory Street - unless otherwise noted.**



SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
 <small>North Carolina Forest Service Archive, Bugwood.org</small>		<i>Beavers add to winter food caches</i>		<h1>November</h1>  miniNaturalists, 10:00-11:00 a.m.	November Gallery, all month. Merle Loman: Nature Photography	
		30	31			
			 Volunteer Naturalist Training. Flowers and Fruits, 4:00-5:00 p.m.			 Saturday Discovery Day. TBA.
		6	7	8	9	10
			 Evening Lecture. Naturalist Trivia Night, 7:00 p.m.	 miniNaturalists, 10:00-11:00 a.m.  Native Plant Gardens Program. November Night Skies, 8:00-10:00 p.m.		 Saturday Kids Activity. Battles of the Bighorn Sheep, 2:00-3:00 p.m.
11	12	13	14	15	16	17
<i>Resident waterfowl seek out open water</i>	 <small>Terry Spilvey, USDA Forest Service, Bugwood.org</small>		 GLM Meeting. 3:30-4:30 p.m.			
18		21	22	23	24	
			 Evening Lecture. Carnivore-Ungulate Management in the 21st Century, 7:00 p.m.	 Native Plant Gardens Program. Holiday Wreath Workshop, 5:30-7:30 p.m.		
25			28	29	30	1
<h1>December</h1>			 Volunteer Fall Fiesta, 4:30-6:30 p.m.	 miniNaturalists, 10:00-11:00 a.m.  Native Plant Gardens Program. Bee Behavior & Beeswax Candles, 5:30-7:30 p.m.	 December Gallery, all month. First Friday Brian Williams: Nature Photography, 4:30-6:30 p.m.	 Saturday Kids Activity. Snowshoe Stomp, Time TBA.
		2	3	4	5	6
			 Evening Lecture. Gary Swant and a Screening of 'The Big Year.' 7:00 p.m.			 Saturday Kids Activity. All About Owls, 2:00-3:00 p.m.
9	10	11	12	13	14	15
 <small>Len Blumin</small>		18	19	20	<div>Look for these program symbols in <i>Montana Naturalist</i> and on our website at <a href="http://www.MontanaNaturalist.org">www.MontanaNaturalist.org</a>.</div> <div> Adult Program</div> <div> Youth Program</div> <div> Volunteer Opportunity</div>	
		25	26	27	28	29



This past spring, Sussex 4th-grade teacher Carrie Brunger had her students send letters, stories, and artwork to *Montana Naturalist* magazine. Here's a sampling of what these young naturalists created.

Dear Allison Dejong,  
My name is Solange Holman. I have been drawing Pileated Woodpeckers for a year or two. I have gotten very good at drawing them. What first got my attention about this bird was their red crest. This picture is of a Pileated Woodpecker.  
I love your magazine! I'm in 4th grade at Sishare school. Thank you.

Solange Holman



Finn Krutek

Dear Ms. Dejong,  
Did you know that a Blue Grosbeak's bottom jaw is more rounded than other birds? My drawing is a male Blue Grosbeak guarding his nest.  
My name is Finn Krutek. I really love looking at birds and their migration. Birds are my favorite things to draw.  
Thank you for spending your time looking at my bird and my cover letter.

### American Kestrel

As the Kestrel soared through the sky, he was thinking, "What should I have for lunch? A cricket?" Just then, his blue slate wings and rust-colored back caught the eye of a Red-tailed Hawk. But before he made up his mind what to eat he met eyes with a hawk.

American Kestrel soared through the trees but his fancy flying didn't help him escape the Red-tailed Hawk. He called a warning cry, "Killy-killy!" Out of the corner of his eye, he saw an abandoned woodpecker cavity in an aspen tree. He swooped towards it. The Red-tailed Hawk, seeing what he was doing, turned around and went off to look for an easier meal.

Feeling safe, Kestrel went back out, turned to the wind, and hovered over the alpine meadow searching for crickets or other insects. He saw a green cricket and dived . . .



Campbell Rolston-Clemmer

## Book Corner:

### Mammals of Montana

by Kerry R. Foresman

Those who love Montana's wild creatures will be delighted to read Kerry Foresman's newly-published *Mammals of Montana*, a

comprehensive guide to Montana's 109 mammal species, from the chattering red squirrel to the elusive wolverine, and from tiny shrews and mice to the massive grizzly bear, moose, and bison—and everything in between.

Learn which is the largest of Montana's 15 bat species, where to find the pygmy rabbit (the smallest rabbit in the world!), how the flying squirrel soars through the air, what makes otter fur unique, and much, much more.

With more than 500 color photos as well as detailed scientific information on the taxonomy, ecology, behavior, and distribution of Montana's mammals, this book engages beginning naturalists and life-long biologists alike. Foresman provides an overview of mammalian characteristics, Montana's various ecosystem types, and methods of observing mammals—which, he says, "can be viewed as either an exciting challenge or an exercise in frustration." *Mammals of Montana* can help ease the challenge and minimize the frustration with its in-depth information about each species' preferred habitat, diet, and behavior.

**Come to MNHC on Wednesday, September 12th, at 7:00 p.m. as Kerry Foresman kicks off our 2012-2013 Evening Lecture series with a talk about Montana mammals!**

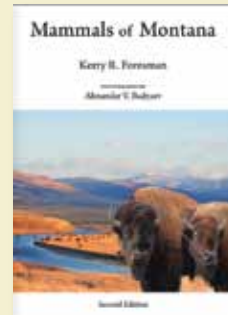


Photo by Carla Isabel Ribeiro

### MNHC Tiger Salamander Naming Contest!

Help us name our tiger salamanders! Send us your suggestions for tiger salamander names—remember to send two! We encourage you to stop by and meet the salamanders first, if you'd like. Drop off your suggestions at MNHC or email them to [contest@montananaturalist.org](mailto:contest@montananaturalist.org) by November 1st. We'll announce the winner in the winter issue of *Montana Naturalist*.

**Grand Prize:** choice of a nature journal kit or a gift certificate for an MNHC program, along with the option to have your picture taken with the salamanders and displayed above their terrarium!

Up close and personal  
with MBHI's Madagascar  
hissing cockroaches!

Photo by Jon Garvin

## Metamorphosing from Dream to Reality: The Missoula Butterfly House and Insectarium

By Allison De Jong

The first time Jen Marangelo visited a butterfly house, at the Pacific Science Center in Seattle, she was in awe. Imagine a greenhouse-like space, warm and open, filled with light and lush plants, and add to all that the bright rainbow colors of hundreds of tropical butterflies fluttering everywhere—and it's no surprise that Marangelo was impressed. So much so, in fact, that she began to dream of creating a butterfly house and insectarium much closer to home.

Marangelo's love of insects is relatively recent, though she's been a naturalist for many years. "Being a naturalist is one of my great joys in life," she tells me over a cup of tea in her homey dining room. "I loved birding and identifying plants, but I really knew nothing about insects." When she began working as a biologist and researcher for Doug Emlen at the University of Montana, however, she learned a great deal about dung beetles (the focus of Emlen's research), which led to a growing curiosity about insects of all kinds.

That curiosity, combined with her dream of creating a butterfly house, inspired her to go back to school for a Master's degree in

Museum Exhibit Design. After finishing this degree in 2008, Marangelo debated staying in Missoula or going elsewhere to pursue the next step of her dream, and ultimately decided to remain in Missoula. Marangelo founded the Missoula Butterfly House and Insectarium (MBHI) in 2009, but it does not yet include a building or exhibit center. Right now the non-profit organization consists of Marangelo, its sole employee, a Board of Directors (which includes Marangelo's husband, Glenn), and a growing collection of live invertebrates, including Chinese praying mantids, a Chilean rose tarantula, Madagascar


"We want to have the opportunity to teach people about these cool animals—insects are so accessible!—and we will be enhancing outdoor experience with our indoor exhibits."

hissing cockroaches, millipedes, and Emperor scorpions, among others.

In 2010 Marangelo had a feasibility study conducted for MBHI, the conclusion of which was that the Missoula community could (and very likely would) support a butterfly house and insectarium. Since then, Marangelo has focused her energies on making her vision a reality. This vision includes a 2,000-square-foot tropical butterfly house with hundreds of imported butterflies; an insect zoo that will include exotics such as walking sticks, mantids, and other tropical insects as well as native Montana invertebrates; hands-on, dynamic exhibits; and a viewing area to watch adult butterflies in the final stage of metamorphosis emerge from their chrysalids—all in all offering a unique experience unlike any others within a 450-mile radius. "Our goal is simple," she tells me. "We want to have the opportunity to teach people about these cool animals—insects are so accessible!—and we will be enhancing outdoor experience with our indoor exhibits."

Currently the Missoula Butterfly House and Insectarium can be found at many Missoula community events, from Downtown Tonight to the Farmer's Market to various insect-related summer camps and Missoula festivals, where interested community members can meet a variety of unusual invertebrates and learn more about the organization. MBHI also offers educational entertainment for birthday parties (call 214.5036 to schedule or for more information).

Marangelo is now seeking community support for her vision. There are many ways to get involved, including volunteering on a variety of levels, becoming a member, and simply making a donation. Check out [www.MissoulaButterflyHouse.org](http://www.MissoulaButterflyHouse.org) for more information.

"People love butterfly houses," Marangelo says with a smile, as various exotic invertebrates rustle in their terrariums in the next room. And she looks forward to the day—in the not-too-distant future—when Missoula residents and visitors will be able to experience this truth for themselves. 

From left:  
Immature Chinese praying mantid  
Chilean rose tarantula  
Emperor scorpion



Photos by Jen Marangelo





# KRUMMHOLZ!

By Beth Baker

**Above:** Mixed-conifer krummholz scattered across the ridge near St. Mary's Peak

**Opposite page, top:** Whitebark pine krummholz "migrating" along the ground

The wind has been sweeping through the dense limbs and filtered light of the conifer forest all afternoon. My sister Britta and I can hear the thrumming as wind harries spruce on the ridge high above us, then rushes down the slope to the path where we trudge. Silvered tree snags creak in the wind's wake. A nearby woodpecker hammers a staccato beat. White thimbleberry blooms waist-high. I step over a pile of fresh-looking bear scat, prominent in the middle of the trail. The trees suddenly feel constricting, and I scan the dim green shadows for browsing bruin-shapes.

Soon, much to my relief, the trail meanders out of the forest and onto a broad ascending ridgeline, which slopes up to Gable Mountain. We are a few miles from Glacier National Park's border with Canada. I relax: I prefer the high subalpine meadows above the tree line, places where the visibility is excellent and you can see for miles in all directions. To the west is the stunning panorama of the Belly River valley, then mountain after mountain, ridges sharp like fins swimming through the sky. To the east is Chief Mountain, a tall red striped chimney.

Nothing impedes the wind as it hurls through open air from the high mountains to shear across the meadow where Britta and I stand. Before us stretches a plain strewn with yellow cinquefoil and white mountain avens. At this elevation, survival depends on plants growing low to the ground. That way, in winter they are insulated by snow pack, and in summer they are protected from winds. I apparently am too tall for this protection: the wind buffets me sideways into a knee-high pine tree, with limbs growing horizontally like a bonsai.

"Krummholz!" I shout delightedly to Britta, over the gale.

Krummholz is a German word meaning "crooked timber." The groves of dwarf trees are found at timberline in exposed subalpine climates. Long winters with frequent desiccating winds impede the growth of these conifers, and cause the limbs to twist at desperate angles to stay closer to the warmer, more protected snow-covered ground. In fact, the height of many krummholz stands indicates the depth of snow pack in the winter. Krummholz are tiny because they grow at elevations with brief growing seasons, so any damage sustained to needles over the winter takes time and energy to repair. Krummholz can occur in many

Photo by Greg Peters





types of tree, though common species include whitebark pine and subalpine fir, and occasionally

Engelmann spruce and Douglas-fir: all species that can survive extreme habitats.

My botanist friend, Greg Peters, first introduced me to krummholz as we hiked St. Mary's peak in the Bitterroots. The snow was still feet thick, and we slogged along, breaking through the crust every few steps. Protruding above the snow were the tops of conifers.

"Baby trees?" I guessed.

"Nope. Krummholz," Greg said.

"Gesundheit."

"These little trees could actually be hundreds of years old," Greg continued. I stepped around the tree spikes with more care as we hiked.

**"I love how krummholz forces us to acknowledge that life doesn't fit into our labels. Are they trees? Are they shrubs? Are they a forest?"**

I confess I was first drawn to the stunted trees because of the name. I like saying it out loud. Krummholz. The satisfying "krumm," reminiscent of childhood insults, the firm closed "z" ending. The natural world is rich with word-nerd lingo: words with precise meanings, a wealth of sounds, and small stories. Other names for krummholz are "elfin wood" and "wind-timber," which are equally delightful.

Krummholz can take a number of different morphologies, depending on the particularities of place. Taller krummholz, called "flag trees," protrude from the snow and are not protected. They are whittled by

strong winds from one prevailing direction, and have limbs only on one side that flap out like a banner in a stiff breeze. Krummholz is also known to migrate in the face of years of steady winds. Gradually, limbs will lie flat on the ground away from the winds and as a result of heavy snow. Roots sprout where the limb touches the ground, and a new cloned tree will grow downwind of the original; this layering effect is also one of the ways that stands of krummholz propagate.

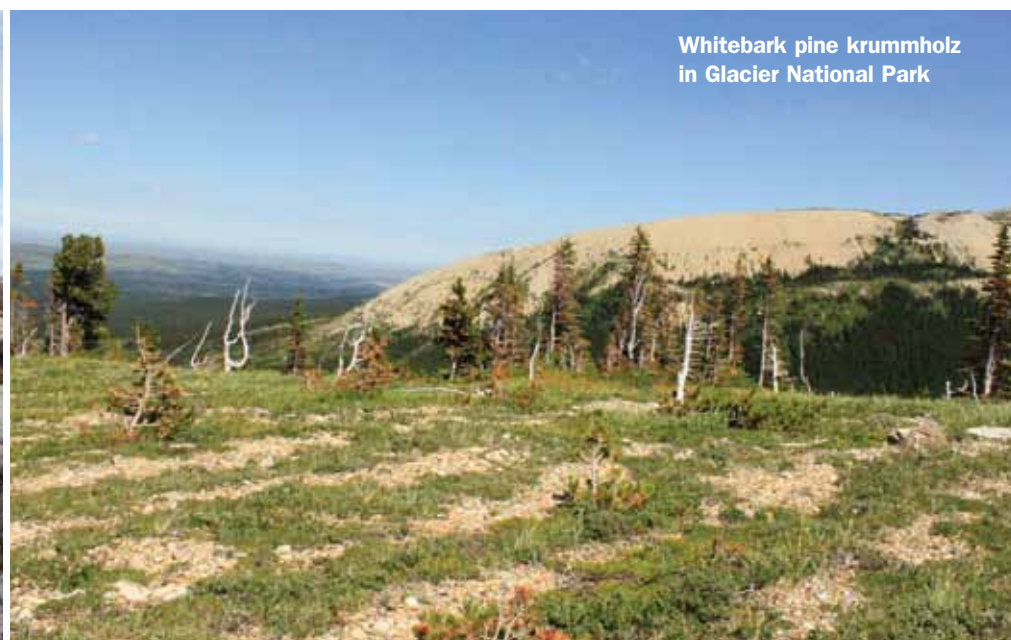
I look around at the tiny trees and marvel at their resilience, their determination to thrive despite the harsh cut of the wind. They grow where they are at. They mark the boundaries between high and low, and signal the end of their species tolerance levels. In many ways, it is difficult to place them: where do they fit? They look like saplings, but are older than our grandparents. Greg told me, "I love how krummholz forces us to acknowledge that life doesn't fit into our labels. Are they trees? Are they shrubs? Are they a forest?"

I stand in the meadow surrounded by the whitebark pine elfin wood. I am the tallest thing in the meadow, towering over both my sister and the stand of krummholz. Soon, the wind's onslaught is too much. My eyes water, my ears are numb, and my legs ache from resisting the gusts. I ditch my pack and sprawl at the level of the krummholz. The wind is much less fierce down here. 🐼

*Beth Baker is a recent graduate of the University of Montana's Environmental Studies Master's program. She lives, writes, and plays in Missoula, MT.*



**Flag tree krummholz, with limbs on only one side**



**Whitebark pine krummholz in Glacier National Park**



MNHC Photos

## Getting Teachers (*and their students*) Outside with **A Forest For Every Classroom**

**T**his past April, nineteen teachers from Missoula, Victor, Florence, Hamilton, Ronan and Seeley Lake embarked on a year-long journey of learning to integrate place-based education in their classrooms.

Committing to multi-day workshops in each season of the year, these teachers are not only gaining experience in place-based learning but forming relationships with fellow educators, agency professionals, a wide variety of resource experts, and local landowners, and increasing their own knowledge so that they are able to teach their students to understand and appreciate the public and private land in their communities.

The program? A Forest For Every Classroom (FFEC), which MNHC launched this spring in partnership with the Forest Service and with support from organizations including Montana DNRC, Montana Forest Restoration Committee, Bitter Root RC&D, Montana Environmental Education Association, Arthur Carhart National Wilderness Training Center, Montana Project Learning Tree, Watershed Education Network and the University of Montana. Three successful programs have already been completed in the Helena and Elkhorn Mountains region, and this year marks the first replication in the lower Clark Fork region of western Montana.

FFEC is a dynamic professional development program for educators focused on place-based approaches to education. It is a year-long commitment beginning in the spring, with each seasonal workshop taking place in a different area: the Clark Fork River Valley, the Bitterroot Valley, the Blackfoot Valley, and the Seeley-Swan Valley. In each area, participants learn about issues unique to that place, from farming practices in the Bitterroot to private ranching in the Blackfoot to timber harvesting in the Seeley-Swan—and much, much more. Each session helps this group of local teachers to build skills and knowledge about forests, outdoor teaching, and the natural and cultural history of the area.

Many of the teachers are attending as a team, with one or more fellow teachers from their own school. Over the course of the year, the participating teachers use the knowledge they gain to develop place-based curriculum for their classrooms, which includes a service-learning component. Students of past FFEC teachers have worked on a variety of projects, from creating an interpretive brochure for a local hiking trail to developing a native plant garden in their schoolyard.

FFEC is open to K-12 educators in every discipline, and MNHC is currently accepting applications for the 2013-2014 program, which will begin next April. The application deadline is December 31st. For more information, visit [www.montanacee.org/professional/AForestforEveryClassroom.htm](http://www.montanacee.org/professional/AForestforEveryClassroom.htm) or contact Lisa Bickell, MNHC Education Director, at 327.0405 or [lbickell@montananaturalist.org](mailto:lbickell@montananaturalist.org).

### What Teachers are Saying about FFEC

*"I can honestly say that the Forest for Every Classroom workshops have been the most useful (and entertaining) professional development classes I've taken so far in my teaching career."*

*"Each weekend is filled with outdoor activities like snowshoeing and tracking animals, testing water quality in creeks, learning to identify trees and flowers, finding out the importance of pine beetles—all while trying to find ways to make it relevant to the students in your own classroom."*

*"I now teach in a new way, see every tree and rock with different eyes and understand the magic the outdoors holds for our children, our future."*

### Forest For Every Classroom 2013-2014 Schedule

SESSION	DATES	LOCATION
Spring Session	April 26-27, 2013	Alberton Gorge area
Summer Session I	June 20-21, 2013	Blackfoot Valley
Summer Session II	June 24-26, 2013	Bitterroot Valley
Fall Session	September 20-21, 2013	Seeley-Swan Valley
Winter Session	January 24-25, 2014	Lubrecht Experimental Forest



# We're Updating Our Nest!

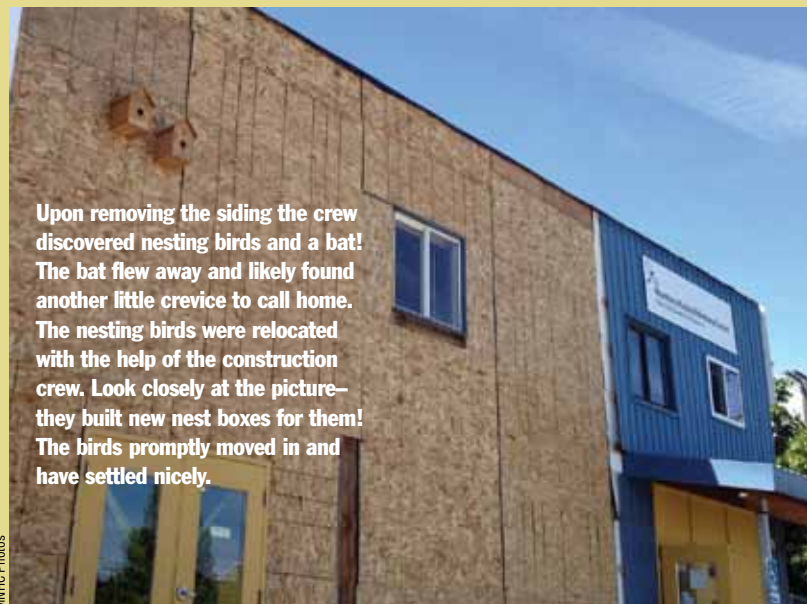
**M**NHC is currently undergoing exterior renovations to the north, west and south sides of our building! We have partnered with Reineking Construction and Sustainable Building Design to modernize and beautify our space. We are also plugging holes and adding insulation, siding and new windows to increase our energy efficiency. Soon we'll be constructing a new entrance to welcome visitors to the Center. It will include beautiful native plants. Come by and check out the progress—we'd love to give you a tour!

Upon completion of the exterior renovations we will head into our next phase—the interior of the center portion of our building. We are excited to announce that our proposed interior renovations will feature a large classroom able to hold up to 73 adults—more than twice the capacity of our current classroom. The new classroom fills a huge need for us to be able to serve our mission. For example, one of our full-day training programs for 30 teachers extends our reach to 750 kids!

Fundraising is currently underway to help us pay for the building renovations. We want to thank our current and future financial partners; this project would not be possible without their assistance. If you're interested in learning more about how your contribution to the building campaign will help us serve our mission please contact Whitney Schwab, Development Director, at 327.0405.



The steel, pictured below, was specially cut by Kim Reineking of Reineking Construction to create the rafters for the focal piece of the Center's entrance—the Butterfly Roof. As you can see in the wooden mock-up, right, the roof is shaped like a butterfly's wings which will facilitate rainwater drainage to the native plants. A more complete view, above, can be seen in the exterior rendering.



Upon removing the siding the crew discovered nesting birds and a bat! The bat flew away and likely found another little crevice to call home. The nesting birds were relocated with the help of the construction crew. Look closely at the picture—they built new nest boxes for them! The birds promptly moved in and have settled nicely.

MNHC Photos



## Mark Your Calendars!

MNHC's Fall Celebration and Auction is coming up on Friday, October 5, 2012, at the DoubleTree Hotel. Join us for dinner, conversation, and the opportunity to bid on an exciting variety of nature excursions, travel packages, artwork and more in both our live and silent auctions. Reserve your tickets today by calling 327.0405 or sending an email to RSVP@MontanaNaturalist.org. Visit [www.MontanaNaturalist.org](http://www.MontanaNaturalist.org) for more information. \$50 per person.








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Kerry R. Foreman  
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# The Sun Moving Across this Particular Earth

By Laurel Nakanishi

When you've run out of things to look at –  
the ant's erratic mapping  
the water picking up and setting down  
the hillside's double  
the mountains spreading alluvial fans  
and your eyes fill

with rose hips, red shale, the deep of this lake

When you've done your wondering at the dust,  
how each fine layer has simplified itself into rust-tinged rock  
and you've noticed the lobes of a thimbleberry  
the fly's artful hands  
the crinkled hair  
of a grizzly caught on a bark snare  
When there is no light to see

contour and scale recede  
leaving you only the mammoth shadows  
the peaks as they block out the stars

*Laurel Nakanishi is a poet, a surfer, a teacher and an activist. Born and raised in Honolulu, Hawaii, Laurel received her M.F.A. at the University of Montana. Read more poems at: [OrTheWorldSoFar.blogspot.com](http://OrTheWorldSoFar.blogspot.com)*





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