

MONTANA

Winter 2011-2012

# Naturalist

## Rock Rabbits

Nature at the Movies

Beautiful Remains



Tips for Winter Outings and More

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Montana Natural History Center  
Connecting People with Nature

# MONTANA Naturalist

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**Cover** – A Stellar's jay perches on a snowy Ponderosa pine branch in the Mission Mountains east of Ronan.

**Reflections** – Apples cling to the tree at the tail end of a November snowstorm, up Smith Creek.

Cover and Reflections photos by Merle Ann Loman, an outdoor enthusiast living in the Bitterroot Valley located south of Missoula in western Montana. Her adventures start there but will also travel the world. She runs, hikes, bikes, fishes, hunts, skis and always takes photos. [www.amontanaview.com](http://www.amontanaview.com)

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Connecting People with Nature

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5:00 a.m., Tuesday,  
December 6, 2011.

This issue of *Montana  
Naturalist* is due to go to

the printer tomorrow and I have put off writing my last Tidings as long as possible. Once I finish, I'll start baking the cupcakes to take to school for my daughter's 10th birthday today.

When I began working for the Montana Natural History Center as the coordinator of Field Notes on Montana Public Radio, Ella hadn't been thought of yet and MNHC was still a small, grassroots organization putting on programs out of the old army headquarters building at Fort Missoula. We have come a long way since then – organizationally, financially, programmatically and physically – but we still carry on the spirit of our founders, to offer creative ways to teach people about Montana's natural history and in so doing deepen their understanding, appreciation and stewardship of our landscape and its natural processes.

It has been my joy to be associated with MNHC through this development, and to have had the opportunity to start up *Montana Naturalist* eight years ago with the initial support and guidance of Anita Maxwell, Brad Robinson and all the then staff and board. Like Field Notes, *Montana Naturalist* essentially is a community collaboration, and it has been so interesting and gratifying to see it take shape and gain popularity as a forum for natural history and the re-burgeoning naturalist movement. I'm so happy now to be able to hand over the reins to Allison DeJong, who has been MNHC's volunteer coordinator, Visiting Naturalist in the Schools support, social media instigator and more for the past three years. Her talent and enthusiasm as a naturalist, educator, writer and organizer will lift the profile and quality of these programs even higher.

I won't disappear from MNHC: my plan is to bake more cupcakes but still be able to contribute articles and Field Notes on my own time, enjoy more field trips and classes and perhaps even volunteer to be a Visiting Naturalist in the Schools sometime. There is so much to know and do and so many people to do it with! I hope I'll see you along the way.

*A Happy New Year to us all,*

**Caroline Kurtz**

*Editor*



Photo by Brian Williams

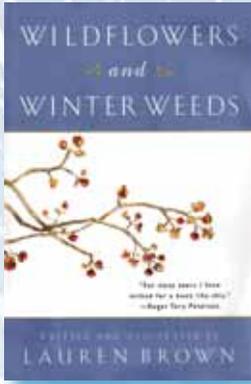
# The Beauty of

By Sara Call

**A**ll across Montana as the snow begins to fly, plants are changing in preparation for the winter months. Deciduous trees morph into colorful displays before discarding their leaves. Some shrubs brighten their stems while other plants become mere shadows of their former selves, identifiable only by shape, berry, color, fragrance or other, non-leafy characteristic.

Although we live in an area where summers are short and winters long, we shouldn't put away our plant guidebooks just because vegetation dies or changes to survive the cold and dark. Most plants don't disintegrate quickly, and it is still possible to identify frail herbaceous stalks leftover from the past growing season. I notice that some July or August beauties become unremarkable as the seasons change, while inconspicuous summer plants can charm an observer with their otherworldly-looking dry remains.

To help me contemplate this more, I picked up Lauren Brown's book "Wildflowers and Winter Weeds" (New York: W.W. Norton & Company, 1997), which focuses on plants – some native, some not – of the northeastern United States, and went exploring for similar remnants that one can find throughout Montana.



## *Allium spp.*

"If you don't notice the [strong onion-smelling] bulb, you can still recognize the plant by the large black seeds borne in an umbel. These seeds are contained inside three-parted capsules, but the capsule walls open downwards under the seeds, so that you might first think they were sepals." (p. 59)

In the frosty cold, you won't be able to smell an Allium's onion-like scent just by standing nearby, but if you pinch the smooth stalk or pluck a black seed from its perch and put it in your mouth, you will catch a hint of it. The plant I found resembled 'wild leeks' in my book, but it's more likely that these elegant, thickly growing Allium plants were wild onions.



**Allium**  
*Allium spp.*

## *Tanacetum vulgare*

"You can recognize tansy by its flat, round flower heads arranged in a flat-topped cluster... If the plant grows near you, you have probably noticed its bright yellow button-like flowers in the summer. The summer plant has finely cut compound leaves which often dry and remain through the winter... Tansy was originally brought from Europe to be grown as an herb... Since its introduction, tansy has escaped and established itself quite well in fields, in vacant lots, along railroad tracks, and in other waste places." (p. 181)

When the flower stalks of this persistent perennial plant die back, they almost appear to rot rather than desiccate – the leaves stay green far past the first frost and the stalks turn brown. The plant always smells medicinal, but in the winter it develops smoky undertones.



**Tansy**  
*Tanacetum vulgare*

## *Achillea millefolium*

"Yarrow is a common perennial of roadsides and fields... You can recognize it by its flat-topped clusters of tan bracts. Yarrow is often used in architectural models to represent trees." (p. 174)

Yarrow frequently grows in and around stands of common tansy, but it loses its leaves and dries out more quickly than tansy, appearing ashen in the late fall and winter. Although yarrow also has flat-topped flower clusters, its floral bracts look less like buttons and more like gnarled, broken bowls.



**Yarrow**  
*Achillea millefolium*

# Winter Plants

## *Rumex crispus*

"You can recognize dock by its dried, three-winged, heart-shaped sepals, which hang in dense umbrella-like clusters from the stems... As is characteristic of the Buckwheat family, dock has wraparound leaf scars." (p. 70)

Curly dock flower stalks become a rich, dark reddish-brown after they set seed, and even though it's not a particularly pretty weed – and definitely not a desirable one, for its seeds are viable for upwards of 50 years – it catches afternoon light exquisitely in its dry, lacy sepal skeletons.

## *Leonurus cardiaca*

"This is a tall perennial which grows up to four and a half feet. The calyx-tubes [fused sepal structures] are arranged in whorls around the square stem, and they are fiercely toothed.... Motherwort was introduced from Asia as a home remedy and has escaped to waste places, gardens, clearings, and roadsides." (p. 146)

Motherwort is in the mint family, and is known for its use by midwives and to pacify the nervous system. At this time of year, the contrast of green stem to tawny calyx-tubes is nice to look at, but beware – the calyxes are sharp!

## *Barbarea vulgaris*

"The fruits [of yellow rocket] are not very sturdy, so in winter you will mainly find the silvery membranes that are left after the fruit has split apart... It is usually quite bushy... Yellow Rocket is a common biennial growing in fields and along roadsides." (p. 90)

The yellow flowers of this member of the mustard family (also known as winter cress) are hard to miss in summer. The winter stalk is less bold, but its feathery remnants are delicate and lovely.

## *Rudbeckia hirta*

"Black-eyed Susan is easy to recognize by its dried cone-like or button-like flower heads. The stems, bracts, and shriveled leaves are all covered with rough hairs. The plant is very common in meadows and waste places, and on roadsides." (p. 175)

When its leaves and flowers shrivel and fall away, the stalks remain, topped with discoid flower heads that, at this time of year, resemble an empty honeycomb. If you find one on a frosty morning, look at how its little hairs hold glimmering crystals and the empty seed head balances feathery shards of ice.

As one season moves into another, it's a great time to go notice things. What hidden – or not so hidden – beauty can you find? 🍂

Sara J. Call attends graduate school in Environmental Studies at the University of Montana. She also currently interns at the Montana Natural History Center.

**Dock**  
*Rumex crispus*

**Motherwort**  
*Leonurus cardiaca*

**Yellow rocket**  
*Barbarea vulgaris*

**Black-eyed Susan**  
*Rudbeckia hirta*

# American Pikas

## *Little Chief Hares of the West*

By Allison De Jong

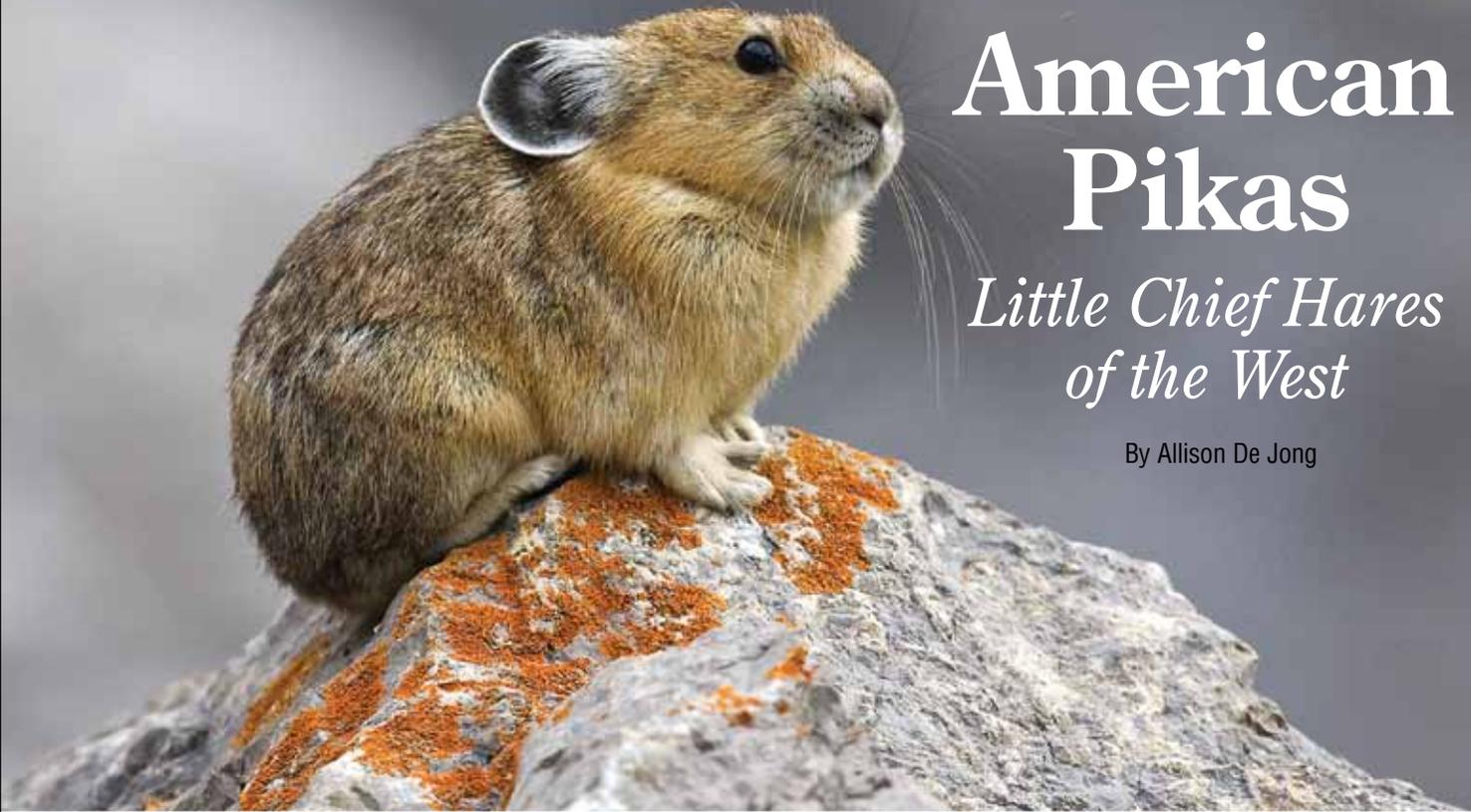


Photo by Alan Wilson, www.naturespicturesonline.com

The first time I heard a pika, I was hiking along a talus slope on the Bass Creek trail in the Bitterroot Mountains. I would have imagined the short, shrill sound to be some kind of bird call were it not for my husband's excited whisper—"Listen. That's a pika!" Following his pointing finger, my eyes fell upon a small gray ball of fur that was nearly camouflaged among the surrounding rocks. As I watched, it darted out of sight beneath the tumbled scree.

Since then, I have heard pikas several times while out hiking, though I've only been quick enough to catch a glimpse of this smallest member of the rabbit order on one other occasion. While not always easy to spot in the wild, in the past few years pikas have come increasingly into the public eye due to their decreasing population and studies linking this decline to the changing climate.

The American pika (*Ochotona princeps*), also called "rock rabbit" or "little chief hare," is one of 30 species of pika worldwide. It lives on talus slopes in alpine ecosystems from California and New Mexico north to Alberta and British Columbia. While in the northernmost reaches of their range they

may be found at relatively low elevations, they generally live between 6,000 and 13,000 feet above sea level.

Pikas are about the size of a potato, and at first glance rather resemble one with their grayish-brown coloring and lack of a visible tail. Up close, an observer will notice the pika's round ears, whiskered nose and tiny paws—and, in many cases, its mouth full of grasses and other plants, which it tirelessly harvests throughout the summer and early fall.

The talus slopes and rocky areas that pikas call home generally are near meadows, from which they collect plant material

to sun-dry and form into haystacks that will supplement their winter diet. Unlike

many mountain animals, pikas neither migrate nor hibernate, and must

therefore store enough food to get them through a winter of wakefulness. Their dense fur helps them survive the cold temperatures, as does spending most of the time in dens and tunnels in the protected subnivean ("under the snow") layer.

Sometimes their harvested stores don't last through

**Pikas keep busy in the summer collecting plant material into haystacks. Often built under large rocks, haystacks can be up to three feet across.**



Photo by April Craighthead



Photo by Lara Oles, Bridger Teton National Forest, USFS

the winter, and pikas must then forage on lichens and cushion plants under the snow until spring melt.

### Life in a stressful climate

Aside from the usual challenges of survival, pikas are now faced with an increasingly pervasive threat: the changing climate.

This past July, April Craighead, a wildlife biologist from the Craighead Institute in Bozeman, spent an afternoon at the Montana Natural History Center leading a training for citizen scientist volunteers interested in helping with a statewide pika survey. We learned that pikas, because of their thick fur and high core body temperature, are extremely sensitive to heat. If unable to find shelter in a cool place, they can overheat and die in as little as six hours if exposed to temperatures above 80 degrees Fahrenheit.

According to Craighead, because they are sensitive to even small changes in temperature and occupy such a narrow ecological niche, pikas are an ideal indicator species for climate change and its environmental and biological effects. Several studies on pika populations and habitat have been conducted in recent years, with a clear connection emerging between warming temperatures and decreasing pika populations.

With their need to live in high, cool, rocky habitats, pikas are essentially island dwellers. They live in alpine areas; they do not migrate; they do not travel long distances – some spend their entire lives within a half-mile radius – and thus they largely remain in isolated pockets of suitable environments scattered across the West. When average summer temperatures go up, pikas have no choice but to move up the mountainsides, much as a creature living on an island must move to higher ground when water levels rise. Eventually, if temperatures rise high enough, pikas will have nowhere to go.

Ironically, the changing weather patterns mean that not only do pikas run a higher risk of overheating in the summer but also of



**You'll probably hear a pika before you see one—pikas give a shrill cry to warn of predators and other threats.**

freezing in the winter. Pikas depend upon an adequate snow layer to protect them from frigid temperatures; without the relative warmth of the subnivean layer, they may die from overexposure.

More intense freezing and thawing patterns also can be detrimental to pikas' tunnels beneath the snow, causing them to collapse and making it difficult for pikas to access their winter food stores.

The goal of the Craighead Institute's pika survey is to provide accurate locations for pika populations throughout the state. Craighead informed us that, though pikas are widespread across Montana, we have very little information on where they actually live. As more and more citizen scientists share in the effort to record pika locations, the increased

*Pikas are an ideal indicator species for climate change and its environmental effects.*

amount of data will help wildlife professionals and agency personnel to identify populations threatened by climate change as well as areas that may provide refuge in the future.

Little did I know, when we saw that pika scampering on a rocky slope in the Bitterroot Mountains, that this little species faces such significant challenges to its survival. There doesn't seem to be an easy answer for the genus *Ochotona*. These hardy (and undeniably cute) "little chief hares" have thrived for millennia in what we would consider to be less-than-hospitable environments. Will they be able to survive the additional hardships of rising temperatures, unpredictable weather patterns and the ever-diminishing range of their habitat? Only time will tell. 🐾

*Allison De Jong enjoys honing her writing and naturalist skills as Volunteer Coordinator and soon-to-be Montana Naturalist editor at the Montana Natural History Center. She has an M.S. in Environmental Studies from the University of Montana.*

### How Do You Know It's a Pika?

**Size:** 6-8½ inches long

**Weight:** 4-6 ounces

**Color:** gray or brown, sometimes a cinnamon shade; fur is more overall gray and is twice as long in the winter.

**Tracks:** mostly found in snow, occasionally in mud. Five toes on forefoot, four toes on hind footprints; hind prints slightly larger. 🐾 🐾

**Scat:** Small, dark oval pellets. Fresh scat is green and moist; pikas will eat their scat to glean the nutrients, and the resulting, twice-processed scat is dark, dry and looks like peppercorns.

**Vocalization:** a shrill whistle or high-pitched peep, similar to the squeak of a dog toy. During mating season, males may make a long call sound.

**Overall appearance:** *ridiculously cute.*



#### The Craighead Institute

needs citizen science volunteers from western Montana to assist with their Montana Pika Survey. Last year 20 citizen scientists provided 70 new pika observations in eight counties in Montana and Wyoming. Interested in helping increase those numbers in 2012? Read up on pikas this winter and attend a training next spring or summer to learn how to identify pika sign and collect and report data. Most trainings are in Bozeman, but we'll have one in late spring in Missoula, too. Check out [www.craigheadresearch.org/pika-research.html](http://www.craigheadresearch.org/pika-research.html) for more information or contact April Craighead at [april@craigheadinstitute.org](mailto:april@craigheadinstitute.org). If interested in the Missoula training, contact Allison De Jong at [adejong@montananaturalist.org](mailto:adejong@montananaturalist.org) or 406-327-0405.



# OUT OF WINTER

Middle-schoolers learn from annual trek to the Tetons

**E**very year, in April or May, Missoula International School teachers take their sixth and seventh graders to the Teton Science School near Grand Teton National Park in Wyoming. The intent is to connect what is studied in the classroom to what goes on in the real world through field experience and a community service project.

Equipped with a field journal designed for their science curriculum, students and teachers head out each day to become naturalists, learning firsthand about the beauty and complexity of the greater Yellowstone ecosystem as it awakens out of winter.

*"I gaze across the bright, white tundra, blinking lightly.... Alex stands beside me, gazing also at the giant mounds of rock and snow that spear out of the ground. He says something about the magnitude of the Tetons. I am occupied with finding wildlife." – Dónal Lakatua*

Each day starts with a morning lesson, in which students get familiar with signs of different animals – fur, scat, tracks, bones. They are asked to think of testable questions – hypotheses – about the specimens. Later on, they go hiking or snowshoeing to look for evidence to test their ideas.

*"The snow was crunchy as we walked in our snowshoes. We came upon a hill and everyone started belly sliding. The wind hit my face as we raced down the hill on our stomachs. The sun was shining and everyone was happy." – Madelyn Osellame*



*"I saw a lot of plants that I don't usually see in Montana. I learned that aspen trees have a sunscreen-like powder on their bark that protects them. I also saw a lot of willow, sagebrush, wild carrot, rocky mountain buttercups and a lot of lichen. I loved how the sagebrush was so plentiful and how it fed so many animals. I also thought the markings on the aspen trees were really cool. They looked like eyes watching us as we snowshoed through the forest."*

– Ingrid Biehl

During the week, students increase their knowledge of important plants and animals of the region, and spend one day conducting a student-designed research project using the scientific method. They've even had the chance to conduct transect surveys and try radio telemetry. Evenings are a time to continue discussions of such topics as invasive weeds, owl adaptations, or the solar system and constellations, and also to play games.

*"Once we looked in a telescope and saw Mars with one of its moons, and Saturn with its rings. It's awesome to see other planets!" – Kristen Cram*

*"The most amazing part [was] the hundreds of elk running [through] the trees.... It was like a really long train. That was when I felt like I was in a paradise of nature. That was the best picture I have ever seen." – Alex Simmons*

One other day during the week is reserved for a stewardship project, which varies from year to year, according to MIS middle-school teacher and trip leader Helena Koelle. Last year, the group worked with the Conservation Research Center to remove fencing to improve mule deer habitat and migration corridors.

"Other times," says Koelle, "we've dug up weeds

and planted wildflower seeds, or planted willow poles along stream banks for erosion control. The service projects are always one of the highlights – watching my students use shovels and saws, all the while giggling and whooping as they find 'buried treasure,' which you or I might call a rotten log or piece of old fencing."

The Teton trip is important, Koelle says, because it gives students an opportunity to study science while teaching them life skills about how to take care of themselves away from home.

They especially remember the night hike, group games and the wildlife watching. "It's definitely an experience the kids don't quickly forget," she says.



*Compiled from information submitted by Helena Koelle and last year's MIS sixth and seventh graders.*

**Top, from left: Gus McCubbin, Helena Koelle, Luke Garnaas, Everett Bayer, Alex Simmons, Molly Kauffman, Ingrid Biehl, Dónal Lakatua, Ariella Salinas, Avery Fleming, Kristen Cram, Lia Erving, Hannah Jakob, Ava Kazemi, Madelyn Osellame, Georgia Kazemi**



Photos courtesy MIS

Drawing by Everett Bayer

## Stay Safe in the Snow

**W**inter is a great time to get outdoors, whether you're hiking, snowshoeing, cross-country skiing, telemarking or building snowpeople in the backcountry. There's just something magical about being outside in Montana's winter wonderlands. But with chilly temperatures and all that wet white stuff, make sure to take the necessary precautions so you can enjoy your winter activities safely.

### Layers, Layers, Layers

First of all, say NO to cotton, which can chill you when it gets wet. Stick to wool, silk and synthetics, which can get wet and still keep you warm.

**Bottom Layer:** moisture-wicking long underwear (silk or synthetics) and thick wool or synthetic socks.

**Middle Layer:** fleece-type pullover or other thick, long-sleeved shirt for warmth & insulation.

**Top Layer:** should be wind- and waterproof, which will help hold in the heat, too. This includes a jacket/shell with hood, wind-resistant hiking pants or snowpants, and gaiters to protect your boots and feet.

**Head to Toe:** Thick mittens or gloves, scarf and hat to regulate temperature, and warm, waterproof boots with a good tread. Gaiters will protect your lower legs and feet from the snow and keep them dry. And it's always good to have spare gloves, socks, hat, base layers, etc.

### Know Where You Are (And Don't Be The Only One Who Does)

Know the trail or area you're going to. If you're exploring new territory, be sure to have a map and compass or GPS (and know how to use them!). Take a buddy along, and tell friends and family when and where you're going. Carry a cell phone – it's amazing how much coverage there is these days, even in the backcountry – and a whistle to help searchers find you in case you get lost.

### Hydrate

Take along plenty of water (hot tea/coffee/chocolate can be a nice addition, too, though keep in mind that sugar and caffeine have a less hydrating effect) and drink it before you feel thirsty. Proper hydration will increase your energy and alertness.

### Carry Calories & Carbs

Pack along high-calorie, high-carb foods to give you the maximum amount of energy and warmth: energy bars (e.g., Clif bars, Luna bars), jerky, trail mix, peanut butter, etc.

### Protect Your Sight & Skin

Sunlight reflecting off snow can be hard on your eyes and exposed skin. Wear sunglasses and sunscreen!

### Know the Snow

If your interests lie in backcountry explorations, take an avalanche safety class before beginning your adventure. For more information and upcoming safety classes in your area, check out [www.missoulaavalanche.org](http://www.missoulaavalanche.org), [www.avalanche.org](http://www.avalanche.org), [www.mtavalanche.com](http://www.mtavalanche.com), and [www.glacieravalanche.org](http://www.glacieravalanche.org).

Joshua Phillips  
above Roaring  
Lion Canyon  
on a January  
trek up Ward  
Mountain.

**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.

**December Gallery**, all month. **Missoula Calligraphers Guild**, Illuminating Nature Through Calligraphy.

**December-April miniNaturalists**, every Thursday at 10:00 a.m. No program Dec. 22 or Dec. 29. Nature program for pre-schoolers. \$3; \$1 MNHC members.

**December 10 Special Saturday Kids Activity Snowshoe Stomp!** Join us for a snowshoeing adventure in partnership with Missoula Children & Nature. Free 327-0405 to register.

**January Gallery**, all month. **Bill Gabriel** presents **Birds and Beasts**. Join us for First Friday, January 6, 4:30-6:30 p.m.

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

**January 4 Evening Lecture**, 7:00 p.m. **Giant Salamanders in Montana: Amphibian Conservation At Home and Abroad**. Presented by Andrew Olsen. \$4 suggested donation; MNHC members free.

**January 7 Saturday Discovery Day**, 10:00 a.m.-noon. **Winter Ecology Walk for Families**. \$5 suggested donation; MNHC members free.

**January 14 Saturday Kids Activity**, 2:00 p.m. **Survival!**, presented by Animal Wonders, Inc. with live specimens. \$5; \$3 MNHC members.

**January 25 Evening Lecture**, 7:00 p.m. **Movie Night**. \$4 suggested donation; MNHC members free.

**February Gallery**, all month. **Master Naturalists** present **Nature Journals**. Join us for First Friday, February 3, 4:30-6:30 p.m.

**February 1 Visiting Naturalist Training**, 4:00-5:00 p.m. **Bone Detective**. Prepare for February classroom visits. No prior experience necessary.

**February 4 Saturday Discovery Day**, 9:00 a.m.-4:00 p.m. **Tracking Workshop**. \$65; \$60 MNHC members.

**February 8 Evening Lecture**, 7:00 p.m. **Meteorology**, presented by Mark Heyka. \$4 suggested donation; MNHC members free.

**February 14 Spring Master Naturalist Course**, 4:00-7:00 p.m. Tuesdays to May 8, with three full-day field trips on March 3, April 14 and May 5. \$395; 3 college credits available. Call 327-0405 to register.

**February 16 Spring Master Naturalist Course**, 4:00-7:00 p.m. Thursdays to May 10, with three full-day field trips on March 4, April 15 and May 6. \$395; 3 college credits available. Call 327-0405 to register.

**February 18 Saturday Discovery Day**, 9:00 a.m.-3:00 p.m. **Science Illustration Workshop** with Emily Harrington. \$35; \$30 MNHC members.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<h1>December</h1>						
11	12	13	14	15  miniNaturalists, 10:00 a.m.	16  December Gallery Missoula Calligraphers Guild, Illuminating Nature Through Calligraphy.	17
18	19	20	21 <i>Winter Solstice</i>	 <small>USFS Photo</small>		24
25	26	27	28			31 <i>Small animals stay active beneath the snow</i>
<h1>January</h1>						
1	2	3	4  Volunteer Naturalist Training. Adapting to Winter. 4:00-5:00 p.m.  Evening Lecture. Giant Salamanders in Montana, 7:00 p.m.	5  miniNaturalists, 10:00 a.m.	6  January Gallery First Friday "Birds & Beasts" photos by Bill Gabriel, 4:30-6:30 p.m.	7  Saturday Discovery Day. Winter Ecology Walk for Families, 10:00 a.m.- noon
8	9 <i>Deer and elk begin to shed antlers</i>	 <small>David Stephens - Bugwood.org</small>		12  miniNaturalists, 10:00 a.m.	13	14  Saturday Kids Activity. Survival! 2:00 p.m.
15	16			19  miniNaturalists, 10:00 a.m.	20	21
 <small>VWP Photo</small>		24	25	26  miniNaturalists, 10:00 a.m.	27	28
		31	<h1>February</h1>			
5	6	7	8  Visiting Naturalist Training. Bone Detective, 4:00-5:00 p.m.	9  miniNaturalists, 10:00 a.m.	10  February Gallery First Friday. Master Naturalists Nature Journals, 4:30-6:30 p.m.	11  Saturday Discovery Day. Tracking Workshop, 9:00 a.m.-4:00 p.m.
5	6	7	8  Evening Lecture Series. Meteorology, 7:00 p.m.	9  miniNaturalists, 10:00 a.m.	10	11 <i>Snowfleas hop about on sunny days</i>

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
12 <i>Bluebirds, robins, and red-winged blackbirds return</i>	13	14 <b>Spring Master Naturalist Course</b> , 4:00-7:00 p.m. Tuesdays to May 8, with three full-day field trips on March 3, April 14 and May 5.	15	16 <b>Spring Master Naturalist Course</b> , 4:00-7:00 p.m. Thursdays to May 10, with three full-day field trips on March 4, April 15 and May 6.	17	18 <b>Saturday Discovery Day. Science Illustration Workshop</b> , 9:00 a.m.-3:00 p.m.
19	20	21	22 <b>Evening Lecture. Life Near the Ground: Land Snails and Slugs of Montana</b> , 7:00 p.m.	23 <b>miniNaturalists</b> , 10:00 a.m.	24	25 <b>Saturday Kids Activity. Hibernation Celebration!</b> 2:00 p.m.
		28	29 <b>Volunteer Naturalist Training. An Experiment in Lift</b> , 4:00-5:00 p.m.	1 <b>Pine Needle Basket Workshop</b> , 5:30-7:30 p.m.	<b>March</b>	
		6	7 <b>Evening Lecture. Montana Before History</b> , 7:00 p.m.	8 <b>miniNaturalists</b> , 10:00 a.m.		
11	12 <i>Buttercups bloom</i>	13	14 <b>Evening Lecture. IAFI Glacial Lake Missoula Chapter Spring Fling</b> , 7:00 p.m.	15 <b>Native Plant Gardens. Starting Your Plants From Seed</b> , 5:30-7:30 p.m.	16	17
18			21 <b>Evening Lecture. Color with the Seasons: Maintaining Camouflage</b> , 7:00 p.m.	22 <b>miniNaturalists</b> , 10:00 a.m.	23	24 <b>Saturday Discovery Day. Snow Geese Migration at Freezeout Lake</b> , 7:00 a.m.-6:00 p.m.
25			28	29 <b>miniNaturalists</b> , 10:00 a.m.	30	31
<b>April</b>		3 <i>Earthworms surface</i>	4 <b>Volunteer Naturalist Training. Fill the Bill</b> , 4:00-5:00 p.m.	5 <b>miniNaturalists</b> , 10:00 a.m.	6 <b>April Gallery First Friday. Group Photography Show</b> , 4:30-6:30 p.m.	7
8	9	10	11 <b>Evening Lecture. The Natural History of Exotic Plant Invasion</b> , 7:00 p.m.	12 <b>miniNaturalists</b> , 10:00 a.m.	13	14 <b>Saturday Kids Activity. Super Cool Snakes</b> , 2:00 p.m.

Terry Spivey, USDA Forest Service, Bugwood.org

Photo by Allison DeLong

**February 22 Evening Lecture**, 7:00 p.m. *Life Near the Ground: Land Snails and Slugs of Montana*, presented by Paul Hendricks of the Montana Natural Heritage Program. \$4 suggested donation; MNHC members free.

**February 25 Saturday Kids Activity**, 2:00 p.m. *Hibernation Celebration!* \$3; \$1 MNHC members.

**February 29 Volunteer Naturalist Training**, 4:00-5:00 p.m. *An Experiment in Lift*. Prepare for March classroom visits. No prior experience necessary.

**March Gallery**, all month. **Master Naturalists** present *Nature Journals*.

**March 1 Pine Needle Basket Workshop**, 5:30-7:30 p.m. Learn how to make a pine needle basket while practicing local conifer identification in this fun workshop. Materials provided. Space is limited, please register by calling 327-0405 by Saturday, February 25th. Fort Missoula Native Plant Gardens, under the big silver water tower at the Fort. Admission: \$5 MNHC members, \$10 non-members

**March 7 Evening Lecture**, 7:00 p.m. *Montana Before History*, presented by Douglas MacDonald. \$4 suggested donation; MNHC members free.

**March 10 Saturday Kids Activity**, 2:00 p.m. *Up in the Clouds*. \$3; \$1 MNHC members.

**March 14 Evening Lecture**, 7:00 p.m. *IAFI Glacial Lake Missoula Chapter Spring Fling*. \$4 suggested donation; MNHC members free.

**March 15 Native Plant Gardens**, 5:30-7:30 p.m. *Starting Your Plants From Seed*. \$5 suggested donation; MNHC members free.

**March 21 Evening Lecture**, 7:00 p.m. *Changing Color with the Seasons: Maintaining Camouflage*, presented by Jeffrey Good. \$4 suggested donation; MNHC members free.

**March 24 Saturday Discovery Day**, 7:00 a.m.-6:00 p.m. *Snow Geese Migration at Freezeout Lake*, with Mike Schwitters. \$60; \$50 MNHC members.

**April Gallery**, all month **Group Photography Show**. Join us for First Friday, April 6, 4:30-6:30 p.m.

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

**April 11 Evening Lecture**, 7:00 p.m. *The Natural History of Exotic Plant Invasion*, presented by Dean Pearson. \$4 suggested donation; MNHC members free.

**April 14 Saturday Kids Activity**, 2:00 p.m. *Super Cool Snakes*. \$3; \$1 MNHC members.

Look for these program symbols in *Montana Naturalist* and on our website at [www.MontanaNaturalist.org](http://www.MontanaNaturalist.org).

-  **Adult Program**
-  **Youth Program**
-  **Volunteer Opportunity**



# Snowflea Circus

## A hop, skip and a jump

**W**hen you're outside this winter, be on the lookout for tiny black, purple or yellow bug-like creatures congregating on top of the snow. Often called "snow fleas," these little guys are neither fleas, nor even insects, but springtails, of the order Collembola.



Photos by Mary Ann Flockerzi

One of their most remarkable characteristics also gives them their name. Springtails have an appendage called a furcula near their end of their abdomen and held close to their body by a catch. When they are startled, they release the catch and "spring" into the air. Some types are able to leap multiple times their body length, or the equivalent of a human being bounding over a 12-story building!

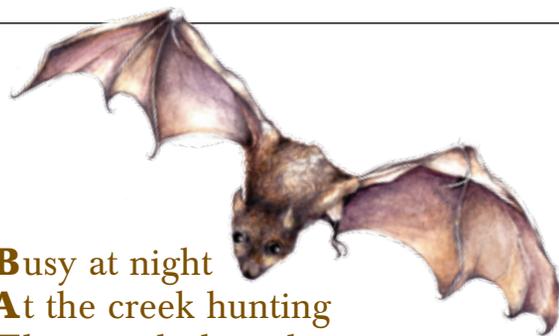
Springtails are possibly the most abundant animals on earth, with a global population even bigger than that of ants. Scientists have identified between 6,000 and 7,000 species, but that may be less than ten percent of the total number; some scientists estimate that up to 100,000 springtail species may exist. They make their homes in a variety of habitats, from deep in the soil to the tops of trees and from the tropics to Antarctica. In general, however, springtails prefer damp climates, which is why good places to look include shaded soil, puddles and snow.

Missoula resident Mary Ann Flockerzi first observed golden snow fleas last year on January 15. "It had warmed up enough that there was water running down the trail on Mt. Sentinel (south summit) and the snow fleas were getting hung up on rocks and sticks, sort of like a log jam, so they were easy to see."

She started stalking them after that, noting them for the last time on June 24. "I never did spot any golden ones in the snow, and I never saw one jump. The black ones hopped all over the place, but the golden ones just plodded along."

Flockerzi also spotted purple springtails in late May-early June. "They were in a ditch and in puddles on the road.... There were either some black ones mixed in with them or maybe [they were] a different stage in the development of the purple ones, and sometimes there would be a golden one walking on top of the purple ones."

So keep an eye out for these tiny, acrobatic animals during your winter explorations – the "flea" circus may be closer than you think.



## Busy at night At the creek hunting They catch their dinner Swooping in the night

Poem by Frankie Schaefer, kindergarten, and Cooper Elliott, 2nd grade, Chief Charlo Elementary School

Illustration © dreamstime.com

## Don't Miss Ansel Adams at MAM

From now until April 15 you can visit *Ansel Adams: A Legacy* at the Missoula Art Museum and immerse yourself in the power and beauty of his landscapes and other scenes as captured in 130 gelatin silver prints of California, Alaska, New Mexico and elsewhere. In Adams' words: "I believe the approach of the artist and the approach of the environmentalist are fairly close in that both are, to a rather impressive degree, concerned with the 'affirmation of life.'" Call 728-0447 or go online to [www.missoulaartmuseum.org](http://www.missoulaartmuseum.org) for museum information.

### Ansel Adams, *Aspens Northern New Mexico.*



Ansel Adams, *Aspens Northern New Mexico*, photograph. ©2011 The Ansel Adams Publishing Rights Trust. At the Missoula Art Museum through April 15, 2012.

## Flowers and Insects and Birds, Oh My!

Sign up for our Spring 2012 Montana Master Naturalist Course and learn all about the trees, flowers, animals and insects of the place we call home. Taught by MNHC Naturalist Brian Williams, our popular 12-week course will be offered in two sections, one on Tuesdays (with Saturday field trips) and one on Thursdays (with Sunday field trips). For complete details, see the Calendar or call 327-0405.



MNHC Photo

# When It's Too Cold Outside...

## Enjoy nature at the Big Sky Documentary Film Festival

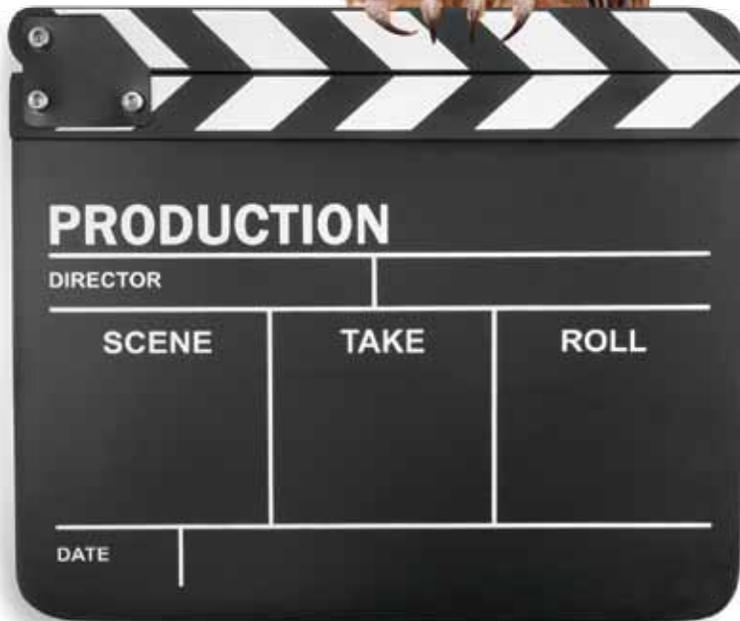
Just when you might need a break from all that cross country or downhill skiing, or whatever your winter activity of choice may be, along comes the Big Sky Documentary Film Festival, February 17-26 at the Wilma Theater in Missoula.

Now in its 9th year, this festival presents 125-150 non-fiction films selected from approximately 1,000 entries submitted from all over the world. It's a chance for filmmakers to premiere new work and for audiences to see innovative new films as well as classics in the genre. There are feature-length and short-format documentaries on a diversity of topics, including nature and the environment, and a special Big Sky Award given to an outstanding entry about the American West.

"The festival is a pastiche; there's something for everyone," says Festival Programmer Michael Steinburg. To help people find their way through the dense schedule, he says, there are different 'strands,' including one called Natural Facts for films that focus on wildlife or the environment at large.

Last year, documentaries in this category included "Clover and Her Mob," about an emu farm in the Bitterroot Valley made by Corvallis High School students in the MAPS Media Institute program, and one called "Second Nature," about the Missoula-based Biomimicry Institute's founder Janine Beynus and her work on emulating nature to solve human problems.

Other 2011 films explored more broad-based environmental issues, such as our over-reliance on plastic, wildland fire, bees, radioactive waste storage, garbage and mountaintop removal coal mining.



### More on the Film Front

For more nature through the medium of film, don't miss the 35th International Wildlife Film Festival, May 5-12 (preview week April 28-May 4) and the Montana CINE International Film Festival that explores intersections of cultural issues, nature and the environment through film and discussions. Go to [www.wildlifefilms.org](http://www.wildlifefilms.org) for more information.

"...We may not be able to go all these places and experience these things first hand, but we can know about them and perhaps be inspired to be better stewards of that world."

Highlights of the 2012 festival are sure to include "Last Call at the Oasis," about the world's imperiled supplies of fresh water by Participant Media, the company that produced "An Inconvenient Truth." Closer to home, "The Lookout" will give viewers a taste of what it's like to spend long periods of time alone atop a mountain in a remote corner of Montana, keeping alert for the first sign of forest fire.

One overarching aim of the Big Sky Documentary Film Festival is to foster and promote a community – of filmmakers and audiences – in nonfiction. Says Steinburg, "documentaries connect us with the human experience like no other art form." For this reason, festival organizers make a big effort to reach out to high-school students

with special screenings and talks with filmmakers. In past years, the festival has offered internships in which students make a film in the fall to be screened at the festival, and this opportunity will return in 2013.

While not all films in the festival directly pertain to the Montana experience, Steinburg says, "they do show what is going on in the natural world. We may not be able to go all these places and experience these things first hand, but we can know about them and perhaps be inspired to be better stewards of that world."

Look for Big Sky Documentary Film Festival program guides around town or go to [www.bigskyfilmfest.org](http://www.bigskyfilmfest.org) to make plans for your indoor nature experience this winter.



## Meet the New Neighbors

**W**e at MNHC are looking forward to having new neighbors sometime in early 2012 when Five Valleys Land Trust moves into the eastern third of the building at 120 Hickory Street. The property was purchased from MNHC as a commercial condominium by FVLT benefactors Kim and Ruth Reineking. The Reinekings are overseeing building renovations and ultimately intend to gift the property to FVLT. “We hope that this proximity will create a natural partnership between MNHC and FVLT, as nature education and land conservation go hand in hand,” says MNHC Board President Hank Fischer.

As FVLT puts a new face on its end of the building, we are planning to make improvements to our part, to ensure both properties are similar in design and appearance and to boost energy efficiency. So keep an eye on what’s happening down by McCormick Park!



**From left to right: Jenny Tollefson, Glenn Marangelo, Ryan Chapin, Grant Kier, Pelah Hoyt, Greg Tollefson, Juniper Davis, Ana Pederson, Holly Biehl, Beth Cogswell, Lewis Kogan**



## Come Play with Us!

Missoula pre-schoolers are enjoying MNHC’s newest educational opportunity: miniNaturalists. Offered from 10:00-11:00 a.m. on Thursday mornings throughout the school year, this program offers two- to five-year-olds fun ways to learn about the natural world. The emphasis is on observation, sensory skills and imagination in order to cultivate a positive connection with nature at an age when children are just beginning to investigate the world around them. Kids get to learn about everything from plants and animals to rocks and outer space through hands-on activities, games and art projects. Join us on Thursday mornings for a fun time of learning and playing! \$3/child; \$1/child for MNHC members.

## Building on Our Foundations



MNHC gratefully acknowledges the following foundations and organizations that help make our educational programs possible.

**Thank you!**

William H. and Margaret M. Wallace Foundation

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Lolo National Forest

Plum Creek Foundation

Missoula County Extension

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# spotlight:

## 2011 Honorees

### Steve Loken

A former board member, advisor and long-time supporter of MNHC, builder Steve Loken was honored with a special "Above and Beyond the Call of Duty" award at our October dinner and auction. We wanted to recognize Steve for his dedication in helping us convert a historic structure at Fort Missoula into a beautiful and useful classroom at the Native Plant Garden. A proponent of using native plants and recycled materials in building projects, Steve donated time and materials when funds were scarce and participated in fundraising events to make this dream a reality. Literally hundreds of adults and young people are enjoying native plant education activities in the new space. Thank you, Steve!



### Betty Oleson

Bestowing the "Volunteer of the Year" award on Betty Oleson, CPA and Fiscal Affairs Director of the Maureen and Mike Mansfield Center at the University of Montana, is long overdue. She has been a stalwart member of MNHC's board and has been particularly generous with the time and attention she gives as our treasurer and financial advisor. As an avid outdoorswoman herself – particularly enjoying hiking, skiing and canoeing – Betty participates on many of our field outings and Discovery Days and communicates her enthusiasm for nature to children during our Visiting Naturalist in the Schools field trips. Thank you, Betty!



### Greg Peters

Our "Educator of the Year" is a professor of biology at the College of Technology and teaches a number of courses there and at the main campus of the University of Montana. Greg has lent MNHC his expertise and skill as a teacher to MNHC since 2005, when he helped develop the curriculum for the first Master Naturalist course, and he continues to teach portions of the course and lead field trips. He is passionate about the natural world and anyone who has taken a class – or a hike – with Greg learns more fascinating details about natural history than they ever are able to remember...which means they keep coming back for another class, another hike. Thank you, Greg!



### Steve Kratville

The choice for "Director's Award" was easy this year – Steve Kratville, the partnership, conservation education and special projects coordinator for the U.S. Forest Service Northern Region. For the past several years he has helped us print our Visiting Naturalist in the Schools student journals, which go to nearly 1,300 kids a year, worked to include MNHC in local partnerships, and worked with us to develop the Forest for Every Classroom curriculum, which will be launched in this region next spring. His efforts to support place-based approaches to conservation, his volunteerism with local service organizations, and his time served as a mentor and tutor have earned him a special place with us. Thank you, Steve!



### Marilyn Marler

One of our own received a very special honor this year. MNHC's Board Vice President, Marilyn Marler, received the 2011 Arnold Bolle Conservation Professional Award, an award that has been given by the Conservation Roundtable since 1972 and honors those in our community who have made constructive, strong and lasting contributions to preserve or protect our natural heritage. Marilyn works tirelessly in the Missoula community as a botanist and ecologist, City Council member, Native Plant Society member, manager of UM's open spaces, active board member for MNHC, and volunteer in a dozen different arenas. Marilyn's strong conservation ethic is entwined with her daily life, and she inspires those around her with the wonder, importance, and practicalities of respecting the natural world. Thank you, Marilyn!



# Fall Celebration a Huge Success

Once again, we'd like to convey our sincere thanks to everyone who attended MNHC's annual dinner and auction at the Doubletree Hotel on October 14. Some 200 people helped us raise a record \$90,000 in support of nature education for children and adults. We especially are grateful for your outstanding response to the \$28,000 Keneda Fund building challenge – you gave nearly twice that much! – which will enable us to update our building façade and improve energy efficiency in 2012. 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 sincere apologies for any missed names.) Thank you!



Photo by Britta Baker

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# Sastrugi

Wind-sculpted dunes on the eastern side of Glacier National Park.

By Hilary Wood

I had been hiking all day, making good time despite the soft snow and constant wind. It was well below zero and twilight gray by

the time I started across the frozen surface of the lake toward the dim outline of my car and its high-powered heater. Thoughts of warmth and a candy bar made me want to quicken my steps, which were slowed to a frustrating crawl by the unpredictable footing. The wind had sculpted the deep snow on the lake into delicate-looking ridges, their sides brittle and fluted as carved ivory. Even my steel-clawed snowshoes were not helpful as these mini-dunes caused me to pitch and fall beneath the weight of my backpack. They stretched out before me in waves, stiff and peaked as meringue.

What was it that stood between me and my Snickers bar? Sastrugi. Although the word sounds like a type of Italian pastry or noodle dish, it's actually a Russian word used to define sharp ridges of snow sculpted by wind. They appear everywhere, from backyards to Siberian wastes, creating intricate patterns and impeding foot travel. Under some conditions they are called dunes, shaped by the same force as the vast sand deserts of the Sahara and Gobi.

Sastrugi are formed in open areas where the wind's velocity is unimpeded by vegetation. As the wind-blown snow moves across a field or lake surface, it is thrown off course a bit by surface irregularities like hills or small depressions. These irregularities get filled in by blowing snow and molded into crescent-shaped sastrugi. Similar to desert dunes, the steep side of sastrugi always forms away from the wind, to the lee side. How far the crests extend depends on the velocity of the wind and the amount and quality of the snow. If it's really cold, sastrugi may be composed of rime ice, which causes their edges to be sharp and brittle.

They stretched  
out before me  
*in waves,*  
stiff and peaked

Although they make walking difficult, sastrugi can be helpful. Accounts from Captain Robert Scott's expedition to the Antarctic in 1910 mention that sastrugi were used to indicate direction. By knowing the direction of the wind, the explorers could set a course by walking at a steady angle to the sastrugi. In white-out conditions, the blinded team resorted to feeling the sastrugi with their feet in order to maintain their direction across the otherwise featureless ice sheet.

Unlike Scott, I could see my destination. But it took time to cross that ocean of sastrugi, enough for me to wish that I had chosen the path around the lake rather than this presumed short cut. The sun had just set by the time

*as meringue.*



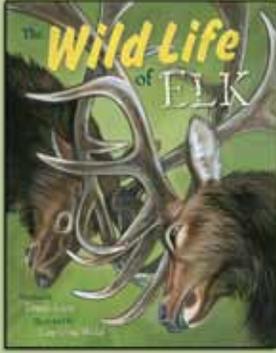
Antarctic sastrugi

I reached my car, giving the sky and snow a dull pearlish luster. The sastrugi swept out behind me like a vast mountain range in miniature, finally beautiful after so much work. A candy bar never tasted better.... 🐕

*This essay first aired as a Field Note on Montana Public Radio in February, 1999. Hilary Wood's company, Small Dog Solutions, specializes in customized website design and development ([www.smalldogsolutions.com](http://www.smalldogsolutions.com)).*



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Photo by Merle Ann Loman



And when you crush an apple with  
your teeth, say to it in your heart:

Your seeds shall live in my body,  
And the buds of your tomorrow shall  
blossom in my heart,  
And your fragrance shall be my breath,  
And together we shall rejoice through  
all the seasons.



*Khalil Gibran*



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