Winter 2005-06

MONTANA Naturalist

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15th Anniversary!
MONTANA Natural History Center

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

Winter 2005-06

MONTANA Naturalist

Features

Departments

Special Pull-Out Section

Correction – Due to an editing error, the cover photo for the Fall 2005 issue was misidentified. The mushroom shown also is called a parasol but is of the genus *Marasmius*, not *Lepiota*.

Cover photo – Great gray owl *(Strix nebulosa)*, taken by Bozeman-based wildlife photographer Daniel J. Cox (www.naturalexposures.com).

15th Anniversary!
MONTANA
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Missoula, MT 59801
(406) 327-0405
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www.MontanaNaturalist.org

tidings

Snowshoeing adventure

MNHC Photo

Greetings of the season to all you *Montana Naturalist* readers! During this time of giving, I thought we should pause to remember the important things that we, as an organization, are grateful for: the enthusiastic participation of community members in our programs and events; the time, talents and energy of our dedicated board members (past and present); the ongoing financial support of members, donors and sponsors; and the generous contributions of writers and photographers that enable us to bring you *Montana Naturalist* throughout the year. From the tiny, colorful world of lichens to the towering pines of Primm Meadows, we hope the articles in this issue remind you about the many natural reasons we have to be grateful for living in Montana.

In 2006 we can look forward to a feast of new Saturday Discovery Days, including a snowshoeing adventure, a writing and collage workshop, a wildlife filmmaking workshop, field trips with local researchers and more. You can also deepen your connection with the outdoors through our Becoming a Naturalist class, help us develop new interactive exhibits about Montana natural history and discover new volunteer opportunities. Together we will continue to learn about and celebrate the beauty and diversity of Montana's natural heritage.

If you'd like to learn more about us and about ways to get involved with MNHC, please stop by or call. We'd also like to hear your views about *Montana Naturalist*. Please send letters to the editor to *MN*, 120 Hickory St., Missoula, MT 59801 or email caroline@TheNatureCenter.org. Happy Holidays from all of us at MNHC,

Caroline Kurtz

Caroline Kurtz
Editor

If you have enjoyed the articles and photographs in *Montana Naturalist*, won't you please help us continue to celebrate Montana's natural history by becoming a voluntary subscriber? Your donation will go directly to support the costs of producing this magazine.

Please send $12, or whatever you can afford, to: *Montana Naturalist*, c/o Montana Natural History Center, 120 Hickory St., Missoula, MT 59801.

Thank you!

Story and Photos by Tim Wheeler

Enter the World of LICH

YOU'VE PROBABLY NOTICED THEM: DANGLING ABOVE A FOREST TRAIL, COVERING ROCKS ATOP AN ALPINE PEAK, COLONIZING FENCE POSTS AND THE BARK OF URBAN TREES. These bizarre shapes and colors that decorate our world are a group of organisms, actually mini-ecosystems, known as lichens.

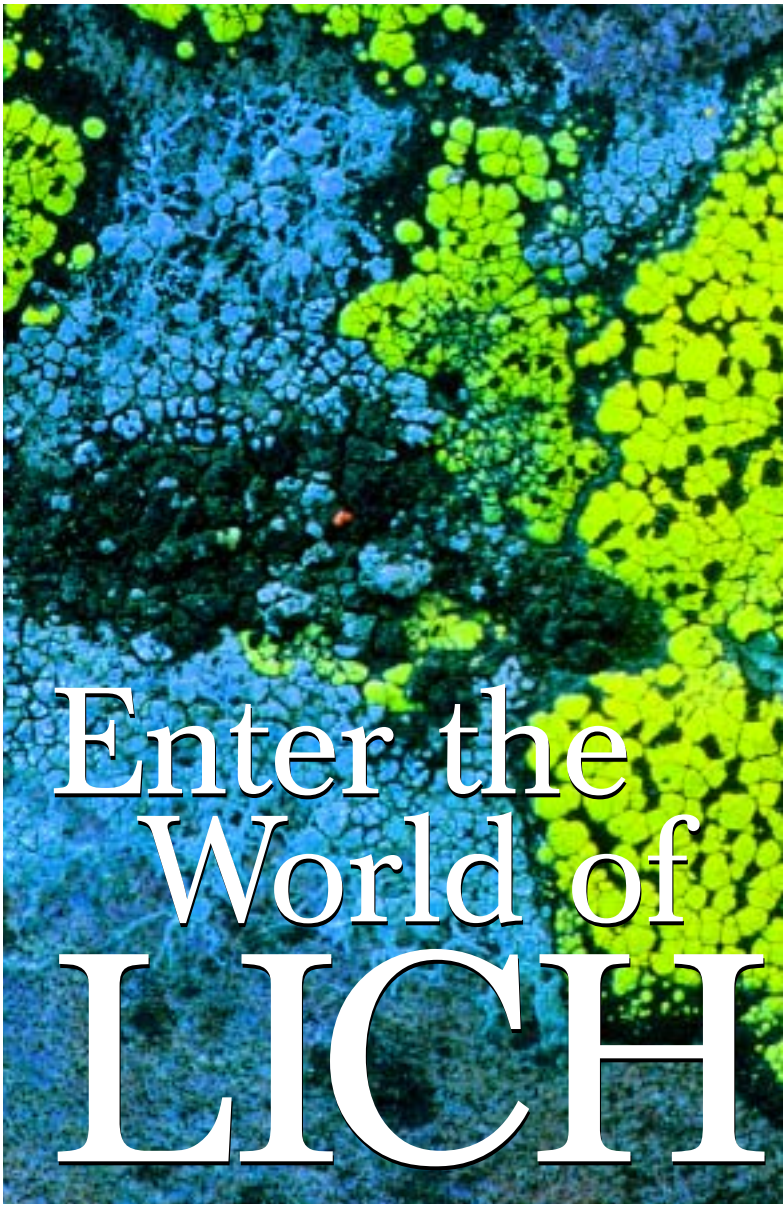
Lichens are an extraordinary union between two, and sometimes three, biological kingdoms. Lichen is the specific combination of a fungus, an alga and the occasional cyanobacterium (blue-green alga), living together in a symbiotic relationship – thriving where the individual parts alone could not. Imagine your dog, the tulips in your garden and the mushrooms on your salad joining together to form a new, fully functional organism!

In this unique association, the fungus provides the housing that supports the algae and/or cyanobacteria. In return, the algae photosynthesize (just like green plants) and provide the fungus with essential sugars. Taking advantage of each partner's abilities, lichens can be found in the most extreme environments, such as sun baked rocks and exposed vertical cliffs.

There are about 2,500 lichen species in the Pacific Northwest alone, and they come in all shapes, sizes and colors. To make identification easier, taxonomists have divided lichens into three main groups: foliose, or leaflike, lichens; fruticose, or shrublike, lichens, and crustose, or crustlike, lichens. The foliose and fruticose lichens often are called macrolichens, while the crustose lichens are called microlichens. Although lichens can be found on almost any substrate in any environment, they reach their greatest diversity on the trees, rocks and soils of moist forests.

Lichens play many important ecological roles in the natural world. They act like sponges, capturing dust and water particles from the air and depositing these nutrients in the surrounding environment – in effect preventing erosion, nutrient loss and desiccation. Some even fix nitrogen, fertilizing the very soil in which they and neighboring plants and trees grow.

Lichens also provide food for mammals and insects. During snowy winters up north, caribou subsist on hair lichens – at times the only food source that remains accessible above the deep snow. Closer to home, mule deer, white-tailed deer, mountain goats, elk, moose and even pronghorn antelope munch on lichens, mostly during winter but also at other times. Many invertebrate organisms, such as mites, springtails, snails and slugs, eat lichens as well. In addition, many species of birds and animals that live in trees, like squirrels, use lichens as nesting material for insulation, support or camouflage. People also value lichens. Cultures all around the world have harvested lichens for food, clothing, dyes, perfumes, medicines, poisons and decorations.



Wolf lichen *(Letharia vulpina)*. This shrubby (fruticose) chartreuse/yellow lichen once was used to poison wolves. It is common on ponderosa pine in dry, open, low elevation forests.

Hammered shield *(Parmelia sulcata)*. This flattened (foliose) lichen grows on the bark and branches of a variety of trees.

LEFT: *Rhizocarpon* sp. One of the yellow map lichens, commonly found on rock outcrops above 6,000 feet.

Here in Montana, we are blessed with diverse and healthy lichen populations. In general, lichens are very sensitive to their environment, reacting both to the type of forest they inhabit and the quality of the surrounding air and water. In the eastern United States, for example, acid rain exterminated many species that only now are starting to re-colonize their former ranges. Here in Montana, we have been fortunate to have incurred less environmental damage. Also, we are situated in a region of converging ecological and climatic zones. We have a Pacific Northwest influence coming from the west, a great basin/desert influence to the south, a prairie influence from the east and a subarctic influence traveling down our mountain ranges from the north. Furthermore, our geologic history has provided a complex landscape that hosts unique lichen floras. Some species only live on siliceous rocks (sandstones, granites), while other species live only on calcareous rocks (limestones, dolomites). In Montana, we have plenty of siliceous rocks, like those of the Belt supergroup of western Montana, and plenty of limestone rocks, such as the Madison formation found in the Bob Marshall Wilderness, Little Belt Mountains and others. We also have plenty of areas that have been affected by glaciers, which just mixed everything up. These factors, coupled with our relatively pristine environment, provide us with many lichen-rich ecosystems to explore.

Here are a few tips for lichen-hunting. On trees, keep an eye out for the bright yellow wolf lichen *(Letharia vulpina)*, once used to poison wolves; the brown-eyed sunshine lichen *(Vulpicida canadensis)*; the grey hammered-shield lichen *(Parmelia sulcata)*; the grey-green forking bone lichens *(Hypogymnia)*; horsehair lichens *(Bryoria)*; and old man's beard *(Usnea)*. On the ground, look for trumpet-shaped pixie cups *(Cladonia)* and the flat, often-furry dog pelts *(Peltigera)*. On rocks, search for brightly colored crust lichens like the yellow map lichens *(Rhizocarpon)*, or the foliose orange sun lichens *(Xanthoria)* and the grey-brown belly button lichens *(Umbilicaria)*.

Although often small and easily overlooked, these fascinating organisms are a significant part of Montana's natural heritage. Lichens can be enjoyed anytime of the year, so the next time you're out and about, keep your eyes peeled, get on your hands and knees, and you shall not be disappointed.

Tim Wheeler is a geologist, outdoor photographer and lichen enthusiast who lives outside Arlee.

Lungwort, or lettuce lung *(Lobaria pulmonaria)*. This lichen grows in moist habitats, such as on this riparian cottonwood.

Dog pelt *(Peltigera venosa)*. This common lichen usually can be found along moist, sheltered forest roads and trail cuts.

See these resources for more information about lichens:

Lichens of North America by Brodo, Sharnoff and Sharnoff. Yale University Press, 2001.

Macrolichens of the Pacific Northwest by McCune and Geiser. Oregon State University Press, 1997.

Macrolichens of the Northern Rockies by McCune and Goward. Mad River Press, 1995.

Lichens by Purvis. Smithsonian Books, 2000.

www.lichen.com

Of Bats and Bridges

By Caroline Kurtz and Paul Hendricks

What isn't known about bats in Montana could fill a book, but a recent study by researchers with the Montana Natural Heritage Program and the Montana Department of Transportation has added a paragraph or two, and perhaps will lead to future chapters.

For decades bat populations worldwide have been on the decline as a result of extermination, deliberate or accidental, and loss of habitat. In particular, the availability of suitable summer and winter roosts may be of major importance to the long-term survival of bats, especially cave or crevice-dwelling species. As bats have been evicted from traditional roosting sites, they have taken to squatting in bridges and culverts. From Canada to Florida, bridges are important roosting sites for at least 24 of the 46 North American bat species, according to Bat Conservation International (see page 7).

A recent BCI survey of 2,421 highway structures across 25 southern and western states showed 17 bat species using bridges and culverts. Montana was not included in that survey because few highway structures here were considered warm enough to meet bats' needs. A quick look at bridges in Yellowstone National Park, however, suggested otherwise and prompted scientists with the Montana Natural Heritage Program and the state DOT to investigate.

Researchers inspected a total of 130 highway structures in Carbon, Stillwater and Yellowstone counties in south-central Montana during the summer of 2003, and again in 2004. They found evidence of bat use in 60 percent. Most sites were used exclusively as night roosts, protected places where bats can rest to digest meals in between foraging bouts. Twelve bridges were day roost sites, sleeping places protected from weather and predators. Four of the 12 sites contained maternity colonies. Big brown bats were the most common daytime bridge users, but researchers also found little brown myotis, western small-footed myotis and a solitary hoary bat as well. Overall, the researchers found that the frequency of bridge use was as high or higher than in many surveyed regions farther south.

Bats used concrete, steel and wood bridges as night roosts in the Montana study, and concrete and wood bridges for day roosts. Bats often chose the vertical faces of girders on the underside of concrete bridges as night roosts, depending on small surface irregularities for footholds and benefiting from the stored daytime warmth of the concrete. T-beam and box beam construction were more popular choices than flat bottom, or slab, bridges, which offered less protection and few places to cling.

Day roosts were generally in more confined and protected locations at greater heights than night roosts. Three of the four

big brown bats

Courtesy of Montana Natural Heritage Program

maternity colonies were found in wood bridges. Roosting crevices provided by these types of bridges are similar to those in bat boxes and may simulate preferred spaces bats use in trees or buildings.

The MtNHP and DOT report recommends that because bat use of bridges is relatively common and widespread in south-central Montana, and possibly throughout the state, measures to minimize disturbance or removal of roosts, even for common species, should be considered when it's time to repair or replace bridges. Departments of Transportation in California and Texas have taken this proactive approach, say the authors, which has helped educate people about bats, benefited farmers and provided much positive publicity at little cost to taxpayers. Montana could benefit from similar policies. For specific design and other recommendations, you can access the complete report at www.mthnp.org.

Paul Hendricks is co-author of the Montana Bats and Bridges study, and a biologist with MtNHP.

Bat Conservation International

BCI's mission is to teach people the value of bats, to protect and conserve critical bat habitat and to advance scientific knowledge of bats through research. Based in Austin, Texas, BCI was founded in 1982 at a time when scientists around the world were becoming concerned that bats, essential to the balance of nature and to human economies, were in alarming decline. BCI research and public programs have repeatedly shown that bats and humans can live together to great mutual benefit, but despite the organization's successes, bats remain among the world's most misunderstood and endangered wildlife. To learn more about Bats and Bridges, or the many other programs and resources offered by BCI go to www.batcon.org, or call (512) 327-9721.

Bat Bits

Bats are not blind. They can see better than humans at night, however echolocation is their most important sense when hunting.

Bats do not suck blood or feed on humans. North American bats eat a wide variety of insects, while those in the tropics also eat fruit. The vampire bats of Central and South America do feed on blood by making a small incision through the skin of livestock or birds, then lapping up small amounts through the wound.

Bats are not rodents. They are more closely related to primates than to rodents. Bats form their own Order, Chiroptera, which means "hand-wing" because their wing bones are similar to those in human fingers, giving bats unique flight abilities.

Despite their ecological importance as pollinators and pest controllers, bats remain among the most misunderstood and maligned mammals in the world. As more and more foraging, habitat and roosting sites are disturbed, altered or removed, there has been an alarming decrease in bat populations over the past several decades. Above photo shows Mexican free-tailed bats emerging from a cave at dusk. Montanans are not likely to witness such an occurance here. The largest known roost of any kind in Montana is a hibernation colony in the Little Rocky Mountains of fewer than 2000 individuals.

hoary bat

Courtesy of Kristi DuBois

The Montana Natural Heritage Program

The Natural Heritage Program (www.mtnhp.org) is the state's most comprehensive source for information on native species and habitats, emphasizing those of special conservation concern. MtNHP scientists collect, validate and distribute this information and help natural resource managers and others make effective use of it. Established by the Montana State Legislature in 1983, the program is located in the Montana State Library in Helena. MtNHP is part of an information network of natural heritage programs in all U.S. states and Canadian provinces, plus a number of Latin American and Carribean nations. For information about plants and animals of North America, go to www.natureserve.org/explorer.

Photo courtesy Libby Langston

Pines of the Past

Lessons from Primm Meadow

"A trip to Primm Meadow is a trip back in time…, a vision of the open Ponderosa forests of long ago."

So begins the story told in "Pines of Primm Meadow," a new video documentary by Marcia Hogan and Libby Langston.

Primm Meadows is 112 acres of old growth ponderosa pine in the Gold Creek drainage of the Blackfoot Valley, surrounded by dense acres of younger larch and Douglas fir. Over centuries, the grove has drawn Native Americans, homesteaders and contemporary visitors to its open, grassy fields dotted with towering russet-colored trees. It's been likened to a cathedral in its beauty, grandeur and sense of peace.

Actually, this type of forest once dominated low-elevation landscapes in western Montana, but now it's very rare, according to Hogan, who recently retired after 25 years as forester and public affairs specialist with Lolo National Forest. That these trees escaped the ax at all during the late 1800s and early 1900s is amazing, she says. During this time, nearly all yellow pine, as ponderosa also is known, was harvested for its premium timber.

"It was gratifying to join with other people who wanted to protect this special place," Hogan says. "And it was thrilling when Plum Creek Timber Company (the current landowner) signed a permanent conservation easement on the property last spring."

Combining recent footage, historical photos and interviews, "Pines of Primm Meadow" tells about the natural forces and cultural history that shaped western Montana.

Louis Adams, a Salish elder, speaks about his tribe camping in the area, peeling bark in the spring for the sweet inner cambium layer and periodically burning the area to bring forth new growth.

Rex Gifford, rancher and log home builder, tells about the original homesteaders, Frank Parker and, later, Charlie and Mahala Primm, and the type of lives they led. Like the Salish people before them, both Parker and the Primms left the large trees alone, cutting smaller trees and renewing the grasses through burning or mowing.

People have always made use of Primm Meadow, says Hogan, but the way they used it was more in accordance with nature's rules than has been the case elsewhere. An important reason why Hogan and Langston wanted to make this video was to help viewers understand the natural processes that shape forests, and perhaps the greatest force in shaping western forests is fire.

Despite research to the contrary, most people still view fire as a destroyer of trees, Hogan says. Yet the pines of Primm Meadow testify to their adaptation and ability to survive fire. Following the wildfires of 2003, which burned fiercely through Gold Creek, Hogan received many calls from people concerned about Primm Meadow. It turned out, she says, that while the surrounding forests were severely burned, these pines emerged unscathed.

"It was amazing, though it shouldn't have been, to see that when the fire reached Primm Meadow it behaved exactly the way research predicted it would," forest ecologist Stephen Arno says in the video. "That is, it dropped to the ground, where the only thing to burn was grass, old needles and bark flakes, and became much less intense."

Hogan and Langston hope such lessons – about fire and forests and the way people used to live on the land – will strike a chord in modern viewers and inspire people to manage their properties in different ways.

"The most memorable moments for me while working on the project were the times spent with the key players," says videographer Langston, who has filmed and produced a variety of natural resource videos over the past 18 years for educational, training and documentation purposes. "They taught me a lot about early Salish people, homesteading life, logging practices of the early 1900s and a time when people were more comfortable with fire than they are now."

Hogan agrees. "At the time it was hard not to get sidetracked by the historical photos," she says, "like ice skating on Rattlesnake Creek and lynx in Bitterroot drainages. Through the making of the video I came to know the place I live in a more meaningful, intimate way."

"Pines of Primm Meadow" was funded by a grant from the U.S. Department of the Interior, Bureau of Land Management, through the Five Valleys Land Trust. It was one of 30 films selected from nearly 100 entrants for screening at the 2005 MontanaCINE (Cultures and Issues of Nature and the Environment) International Film Festival. The 17-minute video is being distributed to libraries, schools, fire educators and other outlets. You can watch it at the Montana Natural History Center.

Winter Owls

By Mat Seidensticker

Photo courtesy Steven Gnam

pygmy owl with waxwing prey

Photo courtesy Mat Seidensticker

long-eared owl

Owls belong to a group of birds known as raptors or "birds of prey." Raptors are deft predators that possess sharp talons and down-curved bills – adaptations of their carnivorous diets. Hawks, eagles and falcons are active during the day (diurnal), while owls are primarily active at night (nocturnal).

Owls have developed several adaptations to help them cope with a nocturnal lifestyle, including large forward-facing eyes, a keen sense of hearing, feather modifications for silent flight and a unique foot arrangement to grasp prey effectively. Owls also have evolved low-frequency vocalizations as a means of communication in the darkness.

As a general rule, owls do not build their own nests – the larger species use old stick nests of other birds (hawks, crows, magpies) and the smaller species tend to use natural cavities or woodpecker holes in trees. Most owls are sedentary or resident, staying in more or less the same place year round. Some of the smaller species, however, do show migratory tendencies.

What about Montana's owls?

From grasslands and prairies to the high mountains, Montana's owls occupy varied habitats. Most species are associated with trees but short-eared, burrowing and snowy owls are equally at home amid the openness of our prairies and plains. In winter, most owls are solitary, often found roosting by themselves. Long-eared owls are an exception, though. This species often roosts in communal, non-breeding groups during winter. Most owl species in Montana are year-round residents. However, the peculiar burrowing owl and predominantly insect-eating flammulated owl tend to leave Montana after the breeding season.

Where do I find those that stay?

A good first step to finding owls is to learn about which habitats each species occupies. To find boreal owls, for example, it would be better to search high-altitude spruce-fir forests rather than cottonwood river bottoms. Owls will often roost at a familiar or "favorite" site during the day. Searching suitable habitat for owl pellets (regurgitated fur and bones) and/or white-wash (owl poop) at the base of trees or in dense thickets will help to locate a favorite roost site. Be sure to investigate large openings or cavities in trees, you just might find a western screech or saw-whet owl roosting inside. Owls are frequently "mobbed" by small birds – and no wonder! Northern pygmy owls, for instance, often visit bird feeders in winter to pick up a quick meal. Take time to look and listen to your surroundings. Sounds from an anxious group of chickadees just might mean an owl is nearby!

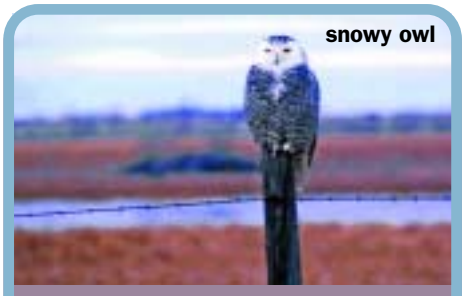
Perhaps the best way to locate owls is to go out at night and listen for them. Montana owls start hooting and tooting in February, and continue through April each year – a sure sign of changing seasons and the onset of breeding time. Each owl species has a unique voice or song that can be used for identification. Learning the voices of each owl species and then going out after sunset to listen is an effective way of locating owls. So get out there and keep your ears open!

Some resources about owls:

Owls, Whoo Are They? by Kila Jarvis and Denver Holt, Mountain Press Publishing Co., 1996.

Owl Research Institute, www.owlinstitute.org

www.owlpages.com



snowy owl

Photo courtesy USFWS

Fifteen owl species have been documented in Montana: barn owl, flammulated owl, western screech owl, eastern screech owl, great horned owl, snowy owl, northern hawk owl, northern pygmy owl, burrowing owl, barred owl, great gray owl, long-eared owl, short-eared owl, boreal owl and northern saw-whet owl. Only one of these species, the snowy owl, does not breed in the state.

get outside calendar

December 5 **Volunteer Naturalist Training,** 4:00-5:00 p.m. Interested in helping with our Visiting Naturalist in the Schools program? Join us to learn about: **Have to Have a Habitat.**

December 9 **Members Only Preview,** Wild Gift Bazaar, 5:00-8:00 p.m.

December 10 **Wild Gift Bazaar,** 10:00 a.m.-4:00 p.m. Find one-of-a-kind gifts at our holiday market.

January 4 **Volunteer Naturalist Training,** 4:00-5:00 p.m. Interested in helping with our Visiting Naturalist in the Schools program? Join to us to learn about: **Adapting to Winter.**

January 4 **Introduction to Botanical Illustration Using Graphite.** Wednesdays through February 8, 6:00-8:30 p.m. Learn how to create classical botanical illustrations in this six-week introductory course for adults with some drawing background. Led by Nancy Seiler Anderson. A materials list and class description will be available on Nancy's website: www.nancyseiler.com. Registration required. $135/ $125 MNHC members; includes a $25 non-refundable deposit due upon registration.

January 7 **Saturday Discovery Day,** 10:00 a.m.-4:00 p.m. **Winter Ecology on Snowshoes.** Head into the Bitterroots with MNHC naturalists to explore the winter wonderland. We'll look at animal tracks, listen for winter birds and learn about snow science. Snowshoeing novices welcome. Call MNHC for snowshoe rental and transportation information; bring a bag lunch. Registration required. Children MUST be accompanied by an adult. Adults $20/$15 MNHC members; children (up to age 13) $15/$10 MNHC members.

January 21 **Volunteer Naturalist Training: Winter Field Trip,** 10:00 a.m. - 3:00 p.m. Interested in helping with our Visiting Naturalist in the Schools February field trips? Join us to learn about: **Winter Ecology.**

January 24 **Becoming a Naturalist class.** Tuesdays through May 9, 4:10-7:00 p.m. at UM, location TBA. Our landscape is a manuscript written in trees, flowers and tracks. Learn how to read its story with this course on the basic skills and tools of a naturalist. Class includes field components with local experts and one or two Saturday field trips. $295, includes a $50 non-refundable deposit due upon registration; register with MNHC.

January 25 **Community Watershed Education class.** Wednesdays through May 3, 4:10 p.m.-7:00 p.m. at UM, location TBA. Open to UM students for credit. Free to community members. Explore the Clark Fork Watershed with local experts. The class culminates with the 12th annual Clark Fork Watershed Festival. Register with MNHC.

January 28 **Introduction to Botanical Illustration Workshop,** 10:00 a.m.-4:00 p.m. Do you love flowers and wish you could draw them? Get a general overview of the art of botanical illustration. For students with little drawing background or those who would like to try out botanical illustration before signing up for one of our six-week courses. A materials list will be available at www.nancyseiler.com. Space is limited; registration required. $40/$35 MNHC members.

December

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
11	12 **5** Volunteer Naturalist Training 4:00-5:00 p.m.	13	14	15	16 **9** Members Only Preview Wild Gift Bazaar 5:00-8:00 p.m.	17 **10** Wild Gift Bazaar 10:00 a.m.-4:00 p.m.
 Photo courtesy Steven Gnam	20	21 *Winter solstice*	22	23	24	
27	28	29 *Mule deer bucks begin to shed antlers*	30	31		

January

Starting in January MNHC will be open T-F 10 a.m. to 5 p.m. and Saturdays noon to 4 p.m.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2	3	4 Volunteer Naturalist Training 4:00-5:00 p.m. Introduction to Botanical Illustration Using Graphite. Wednesdays through February 8, 6:00-8:30 p.m.	5	6	7 Saturday Discovery Day Winter Ecology on Snowshoes 10:00 a.m.-4:00 p.m.
8	9	10 *Raven pairs play*	11	12	13	14
15	16	17	18 *Black, grizzly bear cubs born*			21 Volunteer Naturalist Training: Winter Field Trip 10:00 a.m. - 3:00 p.m.
22	23	24 Becoming a Naturalist class. Tuesdays through May 9, 4:10-7:00 p.m. at UM, location TBA.	25 Community Watershed Education class. Wednesdays through May 3, 4:10 p.m.-7:00 p.m. at UM, location TBA.			28 Introduction to Botanical Illustration Workshop. 10:00 a.m. - 4:00 p.m.
29	30	31	1	2 Volunteer Open House 2:00-4:00 p.m.	3	4

February

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
5	6	7	8	9	10	11 Saturday Discovery Day 10:00 a.m.-12:30 p.m. Rob Whitehair will share his latest film, "Kit Fox: An American Tale"

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

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
12	13	14	15			*Great horned owls lay eggs* 18
Snowfleas hop about on sunny days 19	20	21	22			25
26	**Volunteer Naturalist Training** 4:00-5:00 p.m. 27	28	**March** **Botanical Illustration Using Colored Pencil.** Wednesdays through April 12 (no class March 29), 6:00-8:30 p.m. 1	2	**Closed for Montana Environmental Education Association Conference** 3	4
		7	8	9	10	**Saturday Discovery Day** 10:30 a.m.-3:00 p.m. **Nature as Inspiration: A Writing and Collage Workshop.** 11
		14	*Buttercups bloom* 15	16	17	18
19	*Vernal equinox* 20	21	22	23	*Bluebirds, red wing blackbirds return* 24	25
26	27	28	29	30	31	1
April 2	**Volunteer Naturalist Training** 4:00-5:00 p.m. 3	4	*Pussywillows pop* 5			**Saturday Discovery Day** Time TBA. **Wildlife and Traffic: A Tricky Mix.** 8
16 9 **Volunteer Naturalist Training Spring Field Trip** 10:00 a.m.-3:00 p.m.	10	11	12			15

Photo by Gary M. Stolz, USFWS

get outside calendar

February 2 **Volunteer Open House,** 2:00-4:00 p.m. Visit MNHC to learn about the many volunteer opportunities available.

February 11 **Saturday Discovery Day.** 10:00 a.m.-12:30 p.m. Award winning wildlife filmmaker Rob Whitehair will share his latest film for National Geographic and Animal Planet, "Kit Fox: An American Tale." After the film, Rob and colleague Pam Voth will talk about making wildlife films, including working around animals, using films as conservation tools and ethics in wildlife filmmaking. Space is limited; registration required. $7/$5 MNHC members; $15/$12 MNHC families.

February 27 **Volunteer Naturalist Training,** 4:00-5:00 p.m. Interested in helping with our Visiting Naturalist in the Schools program? Join us to learn about: **Finding Out with Field Guides.**

March 1 **Botanical Illustration Using Colored Pencil.** Wednesdays through April 12 (no class March 29), 6:00-8:30 p.m. Prerequisite: Introduction to Botanical Illustration Using Graphite. This six-week class will teach you how to layer colors and other techniques of colored-pencil rendering. A materials list will be available at www.nancyseiler.com. Registration required. $135/$125 MNHC members, includes a $25 non-refundable deposit due upon registration.

March 11 **Saturday Discovery Day,** 10:30 a.m.-3:00 p.m. **Nature as Inspiration: A Writing and Collage Workshop.** Nature has inspired artists and writers for centuries. We will guide you through the steps of composing a short verse, then making a collage or art book around it. Bring a favorite natural object and copies of nature-related photographs or artwork for inspiration. Most materials will be supplied, but bring an exacto knife and ruler if you have them, also a bag lunch. $20/$15 MNHC members. Registration required.

April 3 **Volunteer Naturalist Training,** 4:00-5:00 p.m. Interested in helping with our Visiting Naturalist in the Schools program? Join us to learn about: **Dive into Diversity.**

April 8 **Saturday Discovery Day,** time TBA. **Wildlife and Traffic: A Tricky Mix.** Learn about research by biologist Kerry Foresman, that uses remote cameras and radio collars to track animal behavior and travel habits to help mammals whose habitat has been divided by development. Visit the wildlife underpasses and culverts being tested on Highway 93 in the Bitterroot to see research in action. Registration required. $20/$15 MNHC members.

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

- **Volunteer Naturalist Training**
- **Summer Science Day Camps**
- **Saturday Discovery Days**
- **Prairie Keepers**
- **Volunteer Opportunity**

Visit MontanaNaturalist.org for directions. To register or for more information, call MNHC at 327-0405.

Coping with Cold

Photo courtesy Steven Gnam

Migrating south in pursuit of food is one way birds cope with the stress of cold weather. But migration takes a lot of energy and can be risky. Also, birds that typically migrate south from Montana in the fall, do not always do so at the same time each year. As long as the weather stays mild and food is available, birds may stay. Osprey, bluebirds, some warblers, even a few hardy hummingbirds have been seen late in the year in recent years, or have even wintered over. What might happen if winters stay mild? Would migration patterns shift? And remember, some birds migrate south to *Montana* for the winter from higher latitudes.

Birds cope with winter in a variety of ways other than by migrating. They can:

- Huddle in groups (nuthatches, chickadees, bluebirds)
- Temporarily drop their core temperature at nighttime (mourning doves, chickadees)
- Fluff feathers for insulation (all)
- Have feathering on legs and feet (grouse, rough-legged hawks, eagles)
- Stand on one leg (many)
- Spread wings to absorb solar radiation on sunny days (great blue herons)
- Roost under snow for insulation (Hungarian partridge, ptarmigan, grouse, snow buntings)
- Roost in tree cavities (chickadees, flickers, owls)
- Change color (ptarmigan)
- Alter food preferences (yellow rump warblers turn from insects to berries in fall; blue grouse eat pine needles in winter)
- Hide food (nutcrackers, chickadees, magpies, saw-whet owls, shrike)

Feeding Birds in Winter

Depending on where you live in the state, hanging feeders in winter may attract chickadees, pine siskins, nuthatches, finches (house and Cassin's) and woodpeckers (flickers, pileated, downy and hairy). Hanging feeders can be tube feeders, which are made of heavy-duty clear plastic so you can see when you're running low on food and have small individual perches, or suet feeders. Many birds love suet (beef fat), but the plastic mesh bags it's often sold in can be dangerous for birds. If the bag tears, birds can become tangled, so buy or make a wire mesh container instead.

Platform and hopper feeders can attract winter wrens, chickadees, Steller's and blue jays (there are some moving into eastern Montana), the occasional red-winged blackbird and grosbeaks (pine and evening). It's fun to watch birds feeding on platforms, but they can be messy and attract rodents. Birds will tend to spill more than they eat, but this can benefit other birds that feed off the ground! Hopper types can be hung or mounted on a pole. Look for models with a canopy and an even-flow distributor that rations seed, thus reducing the need for frequent refills.

Some birds prefer to eat off the ground, including sparrows, juncos, mourning doves, Hungarian partridge, pheasants, towhees (maybe in eastern Montana) and some woodpeckers.

Black-oil sunflower seeds will attract the widest variety of birds. Thistle seed is a favorite of pine siskins and goldfinches (a few do spend the winter from time to time).

See who you can bring to your yard this winter!

Field Note

Snowshoeing up Woods Gulch in the Rattlesnake Recreation Area north of Missoula, my canine sidekicks and I stopped to take in the view as we hit the top of a steep climb. I set my pack down to get some water and noticed a large congregation of tiny dark specks jumping about on top of the snow. The warm, sunny day had brought out the snow fleas!

Snow fleas are not actually fleas, but belong to a very primitive group of insects named Collembola, or springtails. Lacking wings, these critters get around by cocking and releasing a springlike mechanism at the tail end of their body. This catapult system consists of two "tails," called furcula, tucked beneath the insects' bellies and held in place by tiny hooks. When a springtail wants to move it releases these spring-loaded furcula, which hit the snow and send the snow flea flying into the air. Not the best mechanism for getting very far very fast. Springtails have no control over their flight or direction and frequently land in the same spot or only a few inches away.

Snow fleas are most apparent as the snow pack starts to thaw in late winter. On sunny days, they congregate in large numbers to feed on microscopic algae, bacteria and fungi on the surface of the snow. They also are decomposers – organisms that break down leaf litter and other organic matter on the forest floor, building soil. You can find snow fleas any time of year, stuck to the underside of leaves or on the surface of the soil, chomping on bits of rotting vegetation. Working. Turning the soil. Flipping in the air. Going nowhere.

Author unknown

Susan Ellis, www.forestryimages.org

TAKE A WALK ON THE WILD SIDE

at Missoula's New Natural History Center

Exhibits
Explore Montana through time and the seasons. From Bear Gulch to bison and Glacial Lake Missoula to fire ecology, discover the natural heritage in our backyard. Center tours available

Kid's Discovery Room
A kid-friendly space for toddlers to early elementary-school-aged children to explore hands-on materials

MNHC Market
A great source of nature-related books and games, other learning materials, arts and crafts

Public/School Programs
Saturday Discovery Days, Summer Science Day Camps, workshops & courses, Visiting Naturalist in the Schools

Other Resources
Meeting space for business members and local nonprofit organizations
Member and teacher library and herbarium

15th Anniversary!
MONTANA
Natural History Center

120 Hickory Street, Missoula • 406.327.0405
Discover us as www.MontanaNaturalist.org

WHERE NATURE IS THE CLASSROOM

Deepening One's Sense of Place

Photo by Brian Alan Blair

By Steve Archibald

Montanans seem to draw much of their individual and collective self-image from their connection to this place. No matter what part of the state they are from, people feel some connection with the state-wide landscape and a particularly deep attachment to their home place.

While what I've just said may be true, it seems to me that as Montanans become more urbanized in their daily lifestyles, even in the most rural parts of the state, it becomes increasingly difficult to make the connections that our predecessors made so naturally. I suspect that the daily experiences of a Crow elder, a ranching family, a Salish child, a timber faller, an artist or whatever category fits – fifty, one hundred, a thousand or ten thousand years ago – placed them in situations that enabled or even required them to connect to the seasonal rhythms of their place. Today we are just so busy or distracted that months might go by before we realize the current phase of the moon or that winters seem warmer than in the past or a thousand other little details of the natural world.

Maybe having a sense of one's place is essential even for our survival.

"In forty thousand years of human history, it has only been in the last hundred years or so that a people could afford to ignore their local geographies as completely as we do and still survive." So writes author Barry Lopez in his essay "The American Geographies" (in *Finding Home*, published by Beacon Press, 1992). Perhaps having a sense of place is not just an interesting or entertaining idea. Maybe having a sense of one's place is essential even for our survival.

If a Montanan decides that he or she would like to strengthen his or her connection to this amazing place, the question becomes how to do it. Many of our modern daily routines do not require that we be attentive. Jack Turner, in his book *Abstract Wild*, wrote these helpful words: "…for a sense of place is a function not of space but of time, an accumulation of experience and memory constantly renewed."

Maybe, then, it's about committing some time to the establishment or nourishing of our relationship with our place. As with any other important relationship-building endeavor one must commit real time and that time needs to be well spent.

Ten years ago, while I was developing a sense-of-place program for the Teton Science School, I decided I needed to find out how people first made and then deepened their connection to place. At that time I was on the road a lot, visiting and teaching in communities throughout the west. I began posing the question to as many and varied people as I could. I spoke to teachers and farmers, musicians and hunters, retired people and college students, ranchers and non-profit employees, activists and politicians. The question often drew blanks at first. Upon reflection, however, person after person enlightened me with their responses. I found that the key to almost everyone's experience was that they had developed their efforts into habits. Now I understood what Turner had meant by "experience and memory being constantly renewed."

Many interviewees spoke specifically of the time they spent in their gardens. Others spoke of the long walks they took around their towns. Some talked about the quiet times spent reading local histories. There were stories told about fishing trips and long days working on the land. Many suggested that when they gave back to their communities through service they felt especially connected. For some, identifying wildlife and local plants provided the doorway through which they came home to their place.

In addition to the time commitment people made to learning about the history and natural history of their place, I began to recognize patterns in their responses. I later took their comments and organized them into a rather broad list that came to be called Sense-of-Place Life Skills. Clearly this list is incomplete, but at least for me it is a starting place. It motivates me to commit to do more and to do what I do as an environmental studies teacher at a deeper and more meaningful level.

The following are a few suggestions that a rural or city dweller might adopt or use to develop or rekindle a sense of place:

• **Collect and record observations of the natural world.** You might write, draw, list or combine your approach. Some people use fancy bound journals and others make brief notations on their calendars. Popular areas of focus include daily weather, plants in bloom, animals seen – you get the idea.

• **Spend time outside!** Not all there is to know is outdoors – but much of it is. Maybe the commitment is to spend an extra hour or maybe it's to spend an extra day outside. Whatever one can do to foster more time in the field seems worth doing.

• **Celebrate seasonal changes or simply the good luck to live where you live.** Find some friends and loved ones and commemorate the good things in life.

It takes time to build habits. That's what distinguishes a habit from an experience – time! Here in Montana taking time to connect to this place can be a habit-forming and rewarding experience. What would you like to do?

Steve Archibald is an author and educator who spends as much time as possible outside, learning about where he lives.

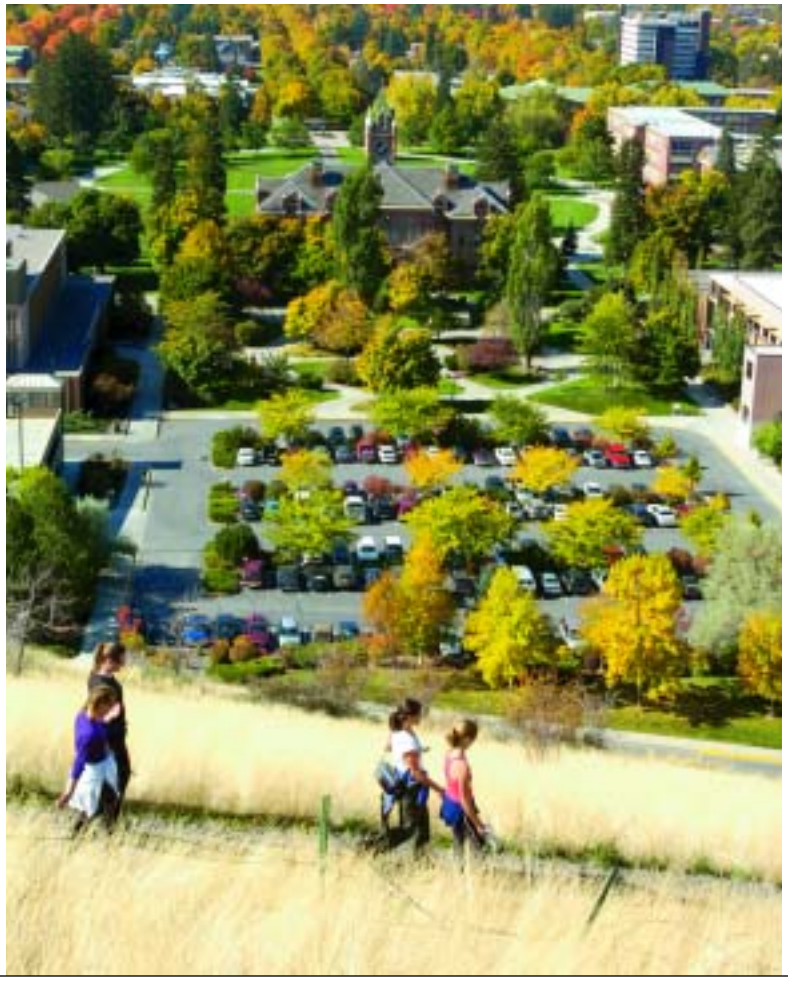


Photo courtesy of Todd Goodrich

Whether in the woods or around town, much can be learned from simply walking around your place.

MNHC Photo

MNHC Photo

Why Participate?

(The following letter was written last winter to MNHC staff by former board member and active volunteer Ellen Knight)

Dear All,

I had such a good day yesterday. I was out from 7:30 a.m. until 2:00 p.m. as a volunteer with the Visiting Naturalist in the Schools program. We were teaching winter ecology to the 4th and 5th graders from Lowell School. I was assigned to work down along the Slevens Island river trail all day. My job was to do the "each-one-teach-one" exercise, so I'd take one kid at a time, teach them something about winter ecology, then have them relay that to the next kid who I'd then take down the trail to another sight to learn something else, and so on. Over the course of the day we learned about fox poop and fox prey (duck in this case), the critters in the river, the beaver in the bank and his 143 pounds of food stored away. We learned about the cottonwoods that are useful dead or alive, the insects that live in the bark, the woodpeckers that eat the insects, the chickadees that use woodpecker holes in winter to huddle for warmth in groups of up to 30 or more. We learned that chickadee brains actually grow in winter so the birds can remember where their seed caches are, and that scientists study bird brains to help people with failing memories. We learned about rosehips with their vitamin C, that deer grow fatter and have more hair in winter and "trail," one after the other, through deep snow to save energy. And we learned about the hawthorn trees that grow in thickets, providing warmth and protection for lots of animals in winter, and about the shrike (a predatory songbird!) that sometimes impales his mouse prey on the hawthorn's sharp spikes to hold it in place. See what fun I had! I believe the kids had just as good a time, too, since they were enthusiastic, focused and learning all day long.

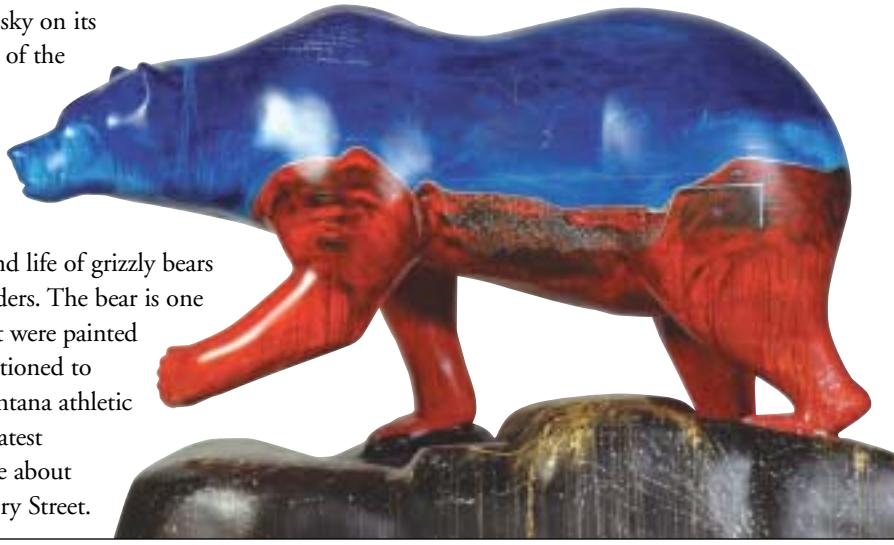
This letter is to let you know how grateful I am for all the work you do in order to provide me with such a wonderful outlet for my own avocation! But we all know that the bigger picture is the critical one: passing on the passion and information that instills a love of nature in the next generation. Hopefully these kids will turn out to be adults who continue to be amazed by the natural world, who live lightly on the land and who work to protect the earth in one form or another. It is good and important work.

With love to you all,

Ellen Knight

Ursa Major

A life-size, fiberglass grizzly bear sculpture decorated by Billings artist Donna Erickson has come to live at MNHC thanks to the generosity of Beth, Bill, Kallie, Megan and Grant Woody. In Erickson's interpretation, *Ursus arctos horribilis* carries the night sky on its back above a cross-section of the Missoula Valley from the time of Glacial Lake Missoula. Quotations from Meriweather Lewis, John Muir and Shoshone legend about the power and life of grizzly bears adorn its rump and shoulders. The bear is one of 35 such "canvasses" that were painted on by local artists and auctioned to support University of Montana athletic programs. Come see our latest acquisition and learn more about grizzly bears at 120 Hickory Street.



Adventures Auctioned, Educators Honored

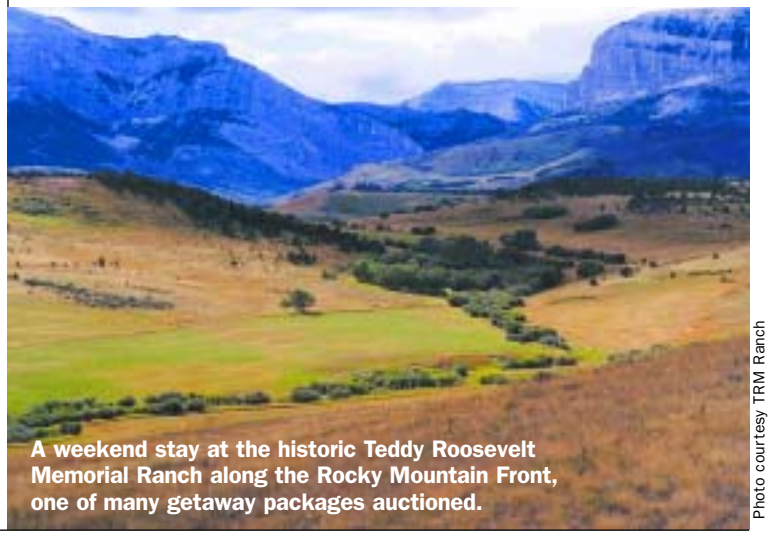
On October 29, some 200 guests had the chance to bid on an array of nature-related trips and prizes at this year's Down by the River Gala and Adventure Auction, which raised funds to support MNHC's Visiting Naturalist in the Schools program, a year-round nature education program in schools, and the development of interactive exhibits for our visitor center at 120 Hickory Street.

In addition, an outstanding individual and an innovative group project were chosen to receive MNHC's 2005 Natural History Educator Awards:

For the past five years, **Sean Sullivan**, program director of the Watershed Education Network, has been working to implement and improve school-based water monitoring programs and the Volunteer Water Monitoring Project. He is the driving force behind the volunteer trainings, innovative water curriculum and stream monitoring field trips for WEN.

The **Integrated Biology and Earth Systems** (IBES) program at Big Sky High School was created by a team of teachers to integrate biology, earth science and chemistry, applying concepts to local systems, societal issues and technology. IBES students work collaboratively to design studies and collect field data, and the results of their work are directly applied in our community.

The purpose of the Natural History Educator Awards is to honor organizations and individuals in the field of natural history education. Awardees, who may come from any background, engage students of all ages with the natural world and inspire those of us in the field to even higher standards. Nominations are accepted every September and awards presented at MNHC's annual Down by the River Gala and auction.



A weekend stay at the historic Teddy Roosevelt Memorial Ranch along the Rocky Mountain Front, one of many getaway packages auctioned.

Photo courtesy TRM Ranch

100 BEST COMMUNITIES for Young People
Sponsored by Capital One

Congratulations, Missoula!

Missoula was named one of the 100 Best Communities for Young People by America's Promise, an organization that supports communities that fulfill five promises to kids: caring adults, safe places, a healthy start and future, effective education and opportunities to help others.

MNHC is proud to be among the dozens of Missoula community organizations and resources that were cited in the award for making our town a positive place for kids and families.

Members Only Preview

Montana Natural History Center
Wild Gift Bazaar

Join us on Friday, December 9, 5:00 - 8:00 p.m. for a sneak peek at what vendors have to offer at this year's Wild Gift Bazaar. This is your chance to make some one-of-a-kind holiday purchases before we open to the public on Saturday, Dec. 10, 10:00 a.m. - 4:00 p.m. See calendar for details. For information on becoming a member, call 327-0405.

Photo by Patrick Clark, www.patrickclark.com.

Wish List

Dear Santa,

What we'd really like for Christmas this year is:

- A large projection screen *(motorized, wall or ceiling mounted)*
- Plotter
- Gas card for Nature Bus
- Gift cards to Michael's, Office City, Fact & Fiction
- Rolling cart(s)
- Large white erase board
- Easel(s)
- Folding chairs
- DVD player and monitor
- P.A. system *(portable amp and microphone)*
- Lightweight collapsible tables
- Overhead projector
- Native plants
- Building supplies *(flooring, electrical, plumbing)*
- Blackout shades
- Small, fireproof safe

Thank you and peace to all,
MNHC Staff & Volunteers

Sitting by Kootenai Creek:
Listening, Thinking

By Charles Finn

There are so many qualities of sound
That come from one stream, so many
Choral differences as it steps down
the stones.
There are the guttural, throaty undertones
Of its intense hiss, the small individual drops
That leap out of the spray.
A stream raises its voice
to an extreme tender whisper
It pours under masses of roots
And rumbles out from the dark.
A stream is a song, a tale, an epic
Of cloud bursts, inching tinkling glaciers
Roots of trees. The sweeping arms
of the trees
Are a stream's recurring themes
Every landing of leaf and insect
A clause, a comma, a word in the story
Every deer wading in
Indenting a paragraph.
It is a mistake to talk of the monotonous
voice of a river or stream
Worse yet to say that a brook babbles.
Every stream is fine literature, poetry
Of the first order
And if I had to guess, I'd say they are
reciting Joyce,
Perhaps, even Blake.

Charles Finn is a writer in Stevensville.
Photo by Brian Alan Blair.

Yes! I want to become a member and support the Montana Natural History Center. All memberships are annual.

☐ Basic Membership: $50 ☐ Senior/Student Membership: $35

☐ Business Membership: $100

☐ I would like to pledge $ _____ monthly/annually (circle one). Please charge my credit card.

All gifts are tax deductible to the full extent of the law.

Name _____

Address _____

_____

City _____ State _____ Zip _____

Phone _____

I would like to pay with credit card (circle one): AMEX VISA Mastercard

Account Number _____ Expiration Date _____

Signature _____

☐ Sign me up for the monthly email newsletter.

Email address: _____

☐ I want to volunteer! Send me a volunteer application.

☐ I would like more information on making a planned gift or gift of stock.

*Make nature your classroom with a visit to our website – **www.MontanaNaturalist.org***

Become a member on-line, explore our programs and discover where the Montana Natural History Center can take you! **Fill out and mail to Montana Natural History Center, 120 Hickory Street, Missoula, MT 59801 or Fax: 406.327.0421**

Basic Membership Benefits

Montana Naturalist annual subscription

Free admission to the MNHC Discovery Center

Invitations to special programs

Membership card & vehicle decal

Access to the Ralph L. Allen Environmental Education Library

Free passes to visit participating nature centers throughout the country

Discounts on all programs and in the MNHC Market

Business Membership Benefits

2 free basic memberships

Invitations to special programs

Membership card & vehicle decal

Free meeting space (September – May) *subject to availability*

10% discount on advertisements in *Montana Naturalist*

Listing in annual report

Supporters link on www.MontanaNaturalist.org

15th Anniversary!
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