

# Welcome to Ousel Falls



*The new Ousel falls trail was built in 2003 through the efforts of the Properties and Trails Committee of the Big Sky Owner's Association. The Ophir School 6<sup>th</sup>/7<sup>th</sup> grade class of 2003-04 added interpretive signs to the Ousel Falls trail to give you information on wildlife, geology, and plant life along the way. Please take a brochure. Enjoy!*

## 1. Welcome to an Ousel Falls Experience!

Your hike today will take you through a variety of habitats and environments. Be aware you are walking through an amazing 'ecosystem,' a place where rocks, soil, plants, and animals are all connected.



Enjoy this scenic place and use this brochure to learn something along the way!

## 2. Big Sky Conifers

The large tree next to this sign is a Douglas Fir (*Pseudotsuga menziesii*), a common conifer in the area. A conifer is a tree that has cones, needle-like leaves, and is usually evergreen. Douglas Firs grow well on this dry, south-facing slope. Note the distinctive bracts in the cones and the thick bark which makes the tree resistant to forest fires. Other trees to watch for on this trail are the Lodgepole Pine and the Engelmann Spruce. The Lodgepole is the most common tree in the Yellowstone area, growing 50 feet to 100 feet tall. It's needles grow in bundles of two, and it has special 'serotinous' cones that drop their seeds when forest fires come through. The Engelmann Spruce is found in the shady environment at the bottom of the valley.



Douglas fir cone

## 3. Challenging Trail Construction

The new Ousel Falls trails was completed in 2003. The new trail was needed as the old trail went through private property that was being developed for homes. Building the trail presented many challenges, including facing the problem of erosion. Erosion from water was avoided by sloping the trail enough to move water into drains, gutters or to flow as a sheet off the trail. To avoid erosion by people, the trail and signs were designed to discourage hikers from straying off the established trail.



Controlling erosion required building 'gabion' retaining walls, using wire mesh over rock to stabilize the slope.

## 4. Lichens

Behind this sign and along the trail you see what looks like moss hanging from the trees. This is actually lichen, an organism that is a combination of algae and fungi living together in a symbiotic relationship. The black lichen hanging in the trees is commonly known as Old Man's Beard, while the bright green

lichen is known as Wolf lichen. The Wolf Lichen contains a toxin that was once used to poison wolves, thus it's name. It was also used by Native Americans as a bright dye.



WOLF LICHEN

## 5. Riparian Areas

You are standing in a riparian ecosystem, and area which includes the river, its banks and the adjacent land. The riparian ecosystem borders both sides of the river, and includes plants, water, rocks, soil, animals, and any man-made structures such as buildings, homes and trails. Riparian areas are important because they provide water, forage, and shade for wildlife. They also give people a place to camp, fish, hike, and picnic.



## 6. Noxious Weeds

There are about 23 different kinds of noxious weeds in Montana. The Canada Thistle is a common weed that grows in the Ousel Falls area. It is tall with purple flowers that produce many seeds. Noxious weeds are harmful because they



can out-compete native species, decreasing forage for animals and degrading the environment. One way to prevent the spread of noxious weeds is to throw any "hitchhiking" seeds that stick to you into the trash.



## 7. Edible Plants

This spring is a good place to see wildflowers.

Some of these plants, such as the purple shooting star (pictured), are edible and/or have medicinal properties. Edible/medicinal plants that can be found in this area include glacier lilies, willow, buffalo berry, and grouse whortleberry. Native Americans often included such plants in



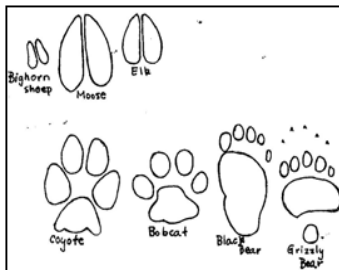
their diet. Never eat a plant unless you are certain you know what it is. And please don't eat the plants today! Leave them for others to see as well.

## 8. Animal Habitat

The variety of environments along this trail provide habitat for many animals, such as deer, elk, moose, or coyotes. There's also a slight chance you might see black or grizzly bears, bobcats, and mountain lions. Ophir students were especially interested in the bobcat and bears. The **Bobcat** is a very secretive cat in the Lynx family, a family with many species throughout N. America. These cats are known for the distinct tufts on their ears. The original bobcats were much bigger than they are now. **Bears** are omnivores, eating fish, berries, roots, and carcasses. The male grizzly bear usually weighs 300-850lbs., and the females are about two-thirds that size. Bears live from dense forests to sub-alpine meadows.

Although you may not see any of the larger animals that live in or travel through this area, you will probably see

their sign along the trail. You may see scat or even hoof prints from moose or elk, or paw prints from grizzly, black bear, coyote, or cats (see picture).



## 9. Leaks in the Earth!

Across the river you see seepage, an area where water filters through the ground and seeps out through fractured rocks. Seepage can cause erosion when the water tears away at the earth around it. This natural phenomenon happens throughout this trail, where efforts to stop erosion can be seen in many places. Seepage creates ice in the winter that is used here in the Ouzel Falls area for ice climbing.

## 10. Geology

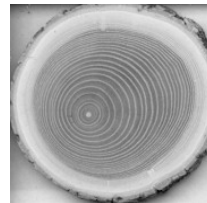
Geology is the study of rocks and how landscape features are formed. An interesting geologic feature that can be seen in this area is the Kootenai formation, visible in and across the river in front of you. The Kootenai formation is a resistant layer of sandstone rock that was formed 115 million years ago in the Cretaceous period. It ranges from two to seven meters thick. The Kootenai is exposed here at Ousel Falls, and is also found throughout southwest Montana.



The resistant Kootenai formation creates a shelf in the stream

## 11. Tree Ring Dating

The study of tree rings, a science known as dendrochronology, can be used to tell the age of a tree, and also to get an idea of the climate through time.



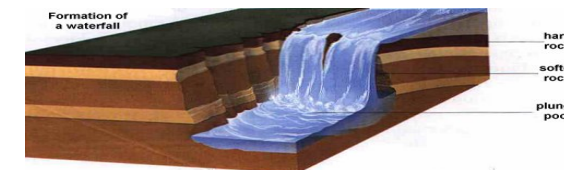
Annual rings, visible in a cross section, are created when a tree adds a layer of wood to its trunk each year. By counting the rings on a stump, you can find out how old the tree is. If the tree rings are very close together, it means that the tree has had a bad growing season. If the rings are far apart, it means that the tree has had a good growing season. Here's a challenge: Look at the stump behind the sign; count the rings and try to figure out how old it is. Also try to figure out when the tree has had a good or bad growing season. Have fun!

## 12. The Old and the New

This path was once the Ousel Falls trail. The new trail was constructed between June 2002 and September 2003. It replaced the first trail, constructed earlier in the 1900's by the Gallatin National Forest. During construction, efforts were made to preserve the natural character of the area, and construction activity was kept out of wildlife habitat and routes. For the most part, wildlife was not disturbed, and the only species that seemed to notice the construction were the inquisitive local squirrels. Wildlife actually became accustomed to the activity and didn't move far away as the crews would pass.

## 13. How waterfalls are created

Congratulations! You made it to Ousel Falls. Waterfalls like this one are formed by rocks that alternate in resistance to erosion. If a weaker bed of rock is downstream of a more resistant rock, the weaker bed will weather faster, leaving a steep scarp and a waterfall. This process takes many years.



## 14. The Ousel

This is a good area to see the oussel, a small bird found along mountain streams. It is often found perched on a rock bobbing up and down, giving the bird its other name, the 'American Dipper.' It is about the size of a robin, and is slate grey with a slanted, wren-like tail. The oussel forages for food along the bottom of the stream, eating water insects like mosquito larva. The oussel does not migrate and lives in icy mountain streams all year.



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