EAGLE GUARD STATION
INTERPRETIVE TRAIL

A COOPERATIVE PROJECT BETWEEN THE
HELENA NATIONAL FOREST AND THE
MONTANA DISCOVERY FOUNDATION
As you hike this trail, remember, the forest belongs to everyone, so stay on the trail, leave only footprints, and take only pictures, notes, and memories.
WELCOME TO THE
EAGLE GUARD STATION
INTERPRETIVE TRAIL

THE TIMES THEY ARE A’CHANGIN’

This moderate level hiking trail winds across flowering meadows, gurgling streams, past an old miner’s cabin and a waterfall. It is four miles long and requires from three to four hours to hike. The overall theme of the trail is CHANGE. No landscape is static and neither are human values. You will see along the trail evidence of natural and manmade changes that reflect various natural processes and human endeavors. All along the trail there are good opportunities for viewing wildlife and to investigate interesting geological formations.
To hike the trail, please follow signs and blazes on trees; stations are marked by brown metal numbers mounted on posts. The distance between interpretive stations vary between 1/8 to 1/2 miles.
Please help take care of public lands. Remember, they belong to you. If you pack it in, pack it out. Be sure to wear proper footwear and clothing suitable for the weather conditions expected. Binoculars are handy for spotting wildlife, and a camera might capture an unexpected critter. Respect the wildlife you see. Stay a safe distance away and remember: you are a visitor in their home.

We hope you enjoy your hike on the Helena National Forest!
Eagle Creek Ranger Station was originally built by Richard (Dirty Dick) Owen about 1895 as a home for himself, his wife, Sarah and daughter, Sadie. During the time the Owens lived there, the country was in a booming gold rush. It is known that Dick Owen worked at Hassel in the mines and possibly at the Park mines – these were mining areas across the Missouri River Valley in the Confederate Gulch area. By the early 1900's, the Owens had moved to Radersburg, where Sarah Owen ran a boarding house.

In 1905, the Elkhorn Forest Reserve was formed, and between this date and the forming of the Helena National Forest in 1908, the Eagle Cabin was taken over by the U.S. Forest Service for administrative use. Eagle, Tizer, and Glendale stations were all tied together by a telephone line that went into a switchboard at the store in Radersburg. The cabin is the oldest administrative log structure on the Helena National Forest and, in fact, predates the establishment of the Forest. The Forest Service on a regular basis used Eagle until the early 1950's. Riders from the Crow and Indian Creek Livestock Association used the cabin over the years up until the 1970s.

Because of its historical value relating to the early history of the National Forest and its integrity, Eagle Cabin is eligible for listing on the National Register of Historic Places. From 1991-1994, the Forest Service, with the help of volunteers and donated materials, restored the cabin. Primitive building skills and materials were used to restore the cabin's original features.

Now, the cabin is used for both administrative purposes and public rental, which may be limited outside the winter season. Rental reservations can be made on the web through www.recreation.gov or by dialing 1-877-444-6777 (toll free). The National Recreation Reservation Service (NRRS) can also be contacted through TDD at 1-877-833-6777 and Internationally at (518) 885-3639.

Humans have been a part of these mountains for thousands of years. As you hike along the trail and view its wonders, consider the human role in this mountainous ecosystem.

Station 2 is about ½ mile from here. To reach it, go uphill on the road above the parking area behind the station 1 sign. At the top of the hill (about a quarter mile), you will find another parking area and corral along with a trail sign and gate. Follow that trail downhill close to another quarter mile watching for a sign pointing to the Eureka Overlook, which is station 2 on a short spur trail.
Eagle Guard Station—then and now
Go ahead and look over the precipice. This overlook provides a view of the eastern Elkhorn Mountains. The forest below may appear as a jumble of bushes and trees, but if you look closer you will notice distinct differences in vegetation with stands of **coniferous** trees and meadows of grasses and forbs interspersed with volcanic **outcrops**. As you descend down into this drainage on the long loop of this trail, notice how the plant life is arranged in layers with each species adapting to its own environment and creating differing habitats for a wide variety of other species.

**Coniferous** trees get their name from the reproductive structure they bear called a cone. These trees and shrubs are mostly evergreen and have needle- or scale-shaped leaves. Common species along the trail are Ponderosa pine, Douglas fir, common juniper, and Rocky Mountain juniper.

An **outcrop** is a striking emergence of bedrock to the surface.

If you look up toward the high rock outcrops forming the rocky bluffs, you may see bighorn sheep especially in the spring and fall.

Return to the main trail and turn left to find station 3 after ¼ mile.
Station 3: The Mighty Force of Nature

Extreme windstorms can affect individual trees as well as large expanses of forests. Trees uprooted by wind are referred to as blowdown or windthrow. These trees may have become susceptible to blowdown due to shallow soil, an unstable water level, disease caused by insects, or by having superficial root systems.

Blowdown creates patches of dead and down materials that influence fuel loading – the amount of material on a site available for combustion. In time, these trees will decay or burn in a fire.

Watch for small doglike tracks or scat with hair and or bones included that may be sign a coyote has passed by.

Coyote and scat

The intersection between the short and long loops of the nature trail lies ¼ mile ahead. Watch for the sign as you walk up the hill past the upcoming draw. The long loop follows Trail 101 to the left; the short loop follows Trail 101a to the right. Station 4 will be the next station on the long loop; station A will be the next station on the short loop.

Notes for the short loop stations begin on page 20 of the Appendix in this booklet.
Station 4: Fire from the Sky

Summer brings fierce thunderstorms to Montana when lightning cracks and flashes often hitting forest trees and sometimes starting fires. Thus, it may be no surprise that some trees possess adaptations that help them survive fire. Large Douglas fir trees, like the one at this station, have thick, flaky bark that helps them survive fire. On this old survivor, lightning sheared off the top of the tree, yet the bark adequately protected the tree’s transport tissues sustaining its life.

Fire is a natural recycling agent in the ecosystem. Ideally, periodic low-intensity fire in this type of forest would keep grasses and flowers under the trees and prevent ladder fuels from carrying fire up into the crowns of the trees. Rather, fires would tend to lie close to the ground where the thick bark can best protect the trees.

Ladder fuels are bushes and small trees that serve to allow fire to burn up over them into the more flammable upper branches of the trees.

Notice that on some trees along the trail you will see one or more spots where the bark has been removed showing bare interior wood. These bared areas are called blazes and were traditionally used to mark trails. They can be particularly helpful in the snow when the trail cannot be seen. As you proceed on this trail, you will come to some open meadows where, at certain times of the year, grasses may nearly completely obscure the trail. Then, it is a good idea to look up and across the meadow where you should be able to spot a blaze and walking toward it assure you will not become lost but stay right on your planned route. Nowadays, placing colored tabs on trees is usually the preferred method for marking trails, but for most trails built over a half century ago, blazes still mark the way.

At the station, look for sagebrush, Rocky Mountain juniper, and arrowleaf balsamroot.

The next station is 1/3 of a mile ahead.
Station 5:
Just Passing Through

Originating from seeps and springs in its upper most reaches and collecting water from Teacup, Tinkettle, and Longfellow Creeks, Eureka Creek forms a **dendritic** pattern on its way as a tributary to the larger Crow Creek. The east bank of this creek in its lower parts is made primarily of erosion resistant **igneous intrusive** material while the west side consists of more erosive sediments deposited perhaps from flooding many years before the intrusion. As the stream cut its classic “V” shape on its flow down against the igneous material, it left high benches on which meadows, grassy areas, and **riparian zones** have developed.

A **dendritic pattern** is characterized by continuous branching into smaller segments as seen in a tree – the word is based on a Greek root word meaning, “tree”.

**Igneous intrusive** rocks represent material that has cooled from molten rocks pressed up through older material. Most of the Elkhorn Range is of igneous origin, which accounts for its high level of mineralization and exploitation for minerals.

**Riparian zones** are areas along the margin of a stream characterized by species that prefer or thrive in the wetter environment offered by the stream.

If you see scat piles filled with berries (in season), torn stumps, or turned over rocks, you may be seeing the sign a black bear has been foraging in this area.

Continue on the trail as it follows the course of Eureka Creek toward Crow Creek to find station 6 in about ¼ mile.
The Elkhorn Mountains are well known for their meadows and grasslands, which provide excellent feeding grounds for elk and other plant-eating wildlife as well as cattle. **Microclimates** within soils are very different depending on whether you are looking at grassland or forest soils. Plants drive roots down into the soil from which they draw both nutrients and water. Meadow grasses and forbs typically do not have extremely deep roots and thus draw a good deal of moisture from the surface layers of the soil. Growth patterns in these plants are well adapted to exploiting seasonal moisture and lying dormant or otherwise surviving dry periods. Forest trees, however, root deeply and draw water from much further down while shading the forest floor from sun, which reduces the amount of water drawn from the surface soils. Adding protection from the forest duff that builds up as spent leaves fall to the ground beneath the trees, a fine, moist seedbed is a welcome nursery to seedling trees. Tree seeds that fall into the middle of a meadow probably will not compete well with the grasses and forbs already established there. Likewise, young trees may not thrive well under the forest canopy due to lack of sunlight. The best growth environment then for young trees is often at the margin of a stand of trees at the edge of a meadow where the combination of moist surface soils and available light nicely balance each other. Absent fire, grazing by deer or other browsing animals, or other disturbances the forest may thus grow out onto a meadow over time.

A **microclimate** is a combination of factors in a small area that affects the average temperature, humidity, groundwater, or light level in the area and thus differentially offers advantages or disadvantages to various species. The average of those same conditions over a large area constitute the area climate or macroclimate.

At this station, look for mounds of dirt from tunnels made under the snow by pocket gophers and shooting stars, larkspur, and wild strawberry all of which may be seen blooming in the spring.

Note: Just after crossing Longfellow Creek, is a trail intersection with the Eagle Station Interpretive Trail bearing to the left through a meadow where the trail is hard to see. Here you can look across the meadow to find a double blaze on a tree across the meadow with a small square cut from the bark above with a cut out rectangle below it. Station 7 is close behind the blaze in the middle of the next meadow about ¼ of a mile beyond station 6.
If these walls could tell their story, we would know more of the history of this cabin. We do know that this cabin was likely built by a miner when mining came to the Elkhorns in the early 1900s. Cabins like this dot the hillsides of the Elkhorn Mountains and provided a haven for the many miners who came and went only until recently.

If you look closely at the surrounding area, you will notice an old ditch that runs parallel to the slope, past the front of the cabin, and then abruptly turns toward the creek. As you walk down the trail, notice the ditch leads to a much larger trench. Judging from the size of the trench, it was worked with hydraulics or a **dragline**. The trees growing in the trench probably were seedlings sometime between 1920 and 1940.

A **dragline** is a type of excavating equipment that is operated from dry land. A bucket for excavating is fastened to a boom by cable, which is maneuvered over the area to be dug. It is lowered for a bit of earth and dragged in to a working area. The dirt is now worked for its ore content.

This is a good area for elk sign, which may include beds (squashed areas of grass), pellets, or consolidated greenish clumps, hoof tracks, or even a “musky smell” you can’t miss once you learn to recognize it.

To follow the trail on from this station, follow the depression at the tree line looking for a tree blaze. Station 8 is about 1/6 of a mile from this station.
The motion of water is a powerful force of creation. This waterfall on Eureka Creek, like other waterfalls in this area of the Elkhorns, developed in response to bedrock and **topography**. The bedrock here is volcanic in nature and very hard. Because bedrock is the substrate at both the top and bottom of the waterfall, there is very little erosion. If the material underlying were more erosive, such as limestone, it would have soon disappeared. The surface on either side of the waterfall is likewise volcanic rock, so this creek, even when a high volume of water passes over the waterfall, stays in the deep channel it has carved down into the resistant rock. In addition to the magnificent falls on Crow Creek (a worthwhile goal perhaps for another day), there are smaller waterfalls like this on many of its tributaries.

For a fish, a waterfall may act as a barrier to upstream movement. This can be desirable to isolate native fish (here, the cutthroat trout) from an introduced fish (rainbow and brook trout). Because of this barrier, Eureka Creek is a prime candidate for the introduction of cutthroat trout in its upstream waters.

**Topography** refers to the configuration of a surface including its relief (hilliness) and the position of its natural and manmade features.

Station 9 is ahead about ½ mile.
Station 9: Riparian Rhapsody

This section of the trail follows close to Eureka Creek. Water is readily available to plant life as the water table is close to the surface in addition to water readily available directly from the stream itself. You may notice a distinct difference between the water-loving plants growing here from those growing on the drier benches along which the trail previously had led. The lush array of plants beckons many kinds of wildlife that feed, nest, or drink along the stream. A quick check of the soft soil along the bank of this creek usually reveals many tracks of ungulates. Birds find riparian areas attractive because there are many insects likewise attracted to the water. The trees are of soft wood, easy for various woodpeckers to bore into, leaving attractive nests for hole-nesting birds. Vegetation is lush because debris slows the stream allowing the soil to act as a sponge. All the characteristics of this riparian zone are vital to sustain healthy plants and wildlife populations.

Ungulates are mammals having hooves such as deer, elk, and moose.

At station 9, look for signs of moose – large pellets with woody appearance or browsed shrub twigs. Plants here include mountain maple, chokecherry, red-osier dogwood, and currant.

The next station is ½ mile ahead.
Mountain ranges are dynamic in nature. Geological forces uplift the rock, while the actions of wind, water, and gravity eventually wear down and sculpt the rock to the topography of the mountains we see today. Eureka Creek provides an example of the activity of water as it incrementally moves sediment. The erosive power of the creek water given by the steep incline in portions of Eureka Creek as it flows downhill to meet Crow Creek and the variability in the resistance of the rocks it cuts through have resulted in the stair step effect you can see at station 10. Where the water cannot wear through hard rock, a step is created with a plunge pool below. Sediments moved from above by the fast-moving water now drop to the bottom of the calm water in the plunge pool. The creek tends to flatten itself out through erosion and deposition. Streams with high energy, like Eureka Creek, will take a long time to level out since much of the eroded material is carried downstream and deposited in Crow Creek. Imagine how long it may take for the creek to erode the base of the canyon deeply enough to be all at the level of Crow Creek.

Sediment is composed of particles of rock or biological material transported by fluid that drop out of the fluid when it stands still or slows its motion.

At this station, you may see a small dark gray water bird, the Dipper, that nests along swift streams and forages underwater. It may display a characteristic bobbing motion as it moves around the rocky edges of the stream.

The next station is 1/6 of a mile ahead.
The Mother Drainage

Crow Creek drains almost half of the Elkhorn Mountains. The creek is formed by the confluence of Little Tizer and Big Tizer creeks, which in turn originate from the glacial cirque basins beneath Crow and Elkhorn Peaks. Crow Creek is, perhaps, most well known for its scenic and once endangered waterfall upstream a few miles from here. Crow Creek is also a popular recreational fishery. Trail 109 parallels Crow Creek from the Forest Boundary to Tizer Basin. Anglers can expect to find both introduced eastern brook and rainbow trout throughout its length. During the summer, many forest visitors enjoy camping, hiking, and fishing in and along Crow Creek. It is likely that Native Americans also made productive use of this major Elkhorn waterway.

A cirque is a semicircular bowl-like valley in the high mountains carved out by glacial action. Often there is a lake called a tarn on the flat floor of the cirque.

You may see white-tailed deer and snowberry brush around you at this station.

The next station is ¼ of a mile ahead.
STATION 12:  
ANOTHER VIEW: A NEW ERA OF ELKHORN MANAGEMENT

While a bit difficult to see now, if you stand at this station looking on a line in the same direction as the old road you just now ascended and up toward the top of the rolling hills, you may make out evidence of several clear-cut units from the 1970s. Clear cut forestry designed originally to mimic the forest-opening effect of fire on a landscape and regarded as especially appropriate in normally fire-maintained forest stands like lodgepole pine forests, became quite controversial. Notice that the border of the cut you can see from here is irregular in shape. Foresters designed sales with such irregular boundaries in response to concerns about the unnatural look of squared-off cuts based on straight survey boundaries.

Public policy governing the uses of the forest varies in its emphasis over time. As a public land management agency, the Forest Service responds to these changing emphases by professionally designing forest management plans to meet the varying mandates. While timber harvesting, grazing, and mining were once more prominent values in Elkhorn management, now the management emphasis is on the maintenance of wildlife and their habitats. The designation of the Elkhorns as a Wildlife Management Unit formally recognizes this mandate.

A clear-cut is a style of forest harvest where all the trees in a given area are cut.

Around this station, you may see signs of badgers in the form of large burrows with mounds of dirt around their openings.

The next station is ½ mile ahead.
Much of the Elkhorn Mountains are grazed not only by herds of elk and deer but also by domestic livestock. During the summer months you may see cattle in this area. You will also see the signs of cattle – fences, water troughs, and yes – look out for the kinds of pies no local restaurant serves!

You may also see a handsome cowboy or two herding them doggies on their trusty steeds.

Livestock grazing began in the Elkhorns shortly after 1863. By 1865, several large cattle ranches were located along Crow Creek. By the early 1900s, overstocking had led to accelerated deterioration of range vegetation. World War I needs for beef exaggerated the problem and led to further deterioration.

In the 1930s, the Forest Service and Bureau of Land Management established allotments for grazing. Slowly, through continual learning and adjusting, the damaged lands within the grazing allotments in the Elkhorns have mostly healed. While some may question the compatibility of cattle in a Wildlife Management Unit, federal grazing permits help maintain the viability of the ranches that surround this area of the Elkhorns. Properly managed, livestock grazing can stimulate the growth and vigor of grasses and shrubs. When ranches are subdivided, wildlife often are the losers.
APPENDIX—Notes for the Eagle Station Short Loop, which begins when walking to the right at the trail intersection between stations 3 and 4 on the Long Loop.

STATION A:
WATER FIGHT

Here at the interface between the open grasslands and the forest, a constant war is waged. This silent battle is for water. Since the roots of trees penetrate much more deeply into the soil than the more shallow root systems of sagebrush and bunchgrasses, the trees will ultimately win this battle… or will they?

Historically, these relatively dry sites had a frequent visitor. This visitor was fire. In the battle of trees versus grasses and shrubs, fire was the friend of grasslands and the enemy of trees. Of the trees, only the biggest with thicker bark and higher branches were able to survive the flames.

In the past, land managers were not fully aware of the ecological importance of fire and responded to a social preference for trees over grasslands as well as concern for the destructive effect wildfires dealt to other human values to become very good at putting fires out. Livestock and other grazers also kept grasses short assisting in making it more difficult for lightning-caused fires to spread. You can see the result here. Is it better to have more trees or more grass in this area?

Today, some areas around Eagle Guard Station are intentionally burned to keep the trees at bay and the grasses and shrubs healthy. In other areas, trees are left to help hide deer and elk from both 2- and 4-legged predators and for shade.

Station B is 590 feet ahead.
STATION B: GULLY WASHER

This gully is dry. Not only that, but it has trees and grasses that don’t need much water. But what happens in a severe thunderstorm? This gully is the path of least resistance for water falling on the “uplands” to flow to the nearest creek – in this case, Eureka Creek. Streams that flow in these types of channels are called “ephemeral” as they come and go with the availability of water.

Geologic forces raise the mountains up and water tears them down. Very slowly, water picks up soil and carries it downstream. Soil from this gully may eventually find its way to the Gulf of Mexico.

The next station is 830 feet ahead.
STATION C: A CIRCLE OF HABITAT

The top of the ridge! Take the time to turn in a circle. In all directions there are important wildlife habitats. This mosaic of grasses, sagebrush, and trees offers food and shelter for all kinds of wildlife within the Elkhorn Management Unit. If you are here early or late in the day, you may see elk, bighorn sheep, black bear, or mule deer. One lucky person actually saw a wolverine on this ridge! Golden Eagles and other raptors such as the Red-tailed Hawk live here too. Other birds (do you hear any?) sing and nest in all these habitats. The Elkhorn Mountains are especially productive for wildlife because of this mixture of meadows and forests.

When you’ve had your fill of this wonderful Elkhorn vista, continue down hill on the old road to Station D 187 feet away.
This trail used to be a road. There were many roads in this area – some built long ago and others pioneered by recent humans. In an effort to balance the needs of the soil, water, vegetation, and wildlife with the needs of people, land managers identified a system of “designated routes,” which are roads where motorized vehicles may travel. The roads that were not so designated are now being physically blocked and reseeded with grasses. This will help curb the spread of weeds, cut down on erosion, and provide animals with more places free from motorized disturbance. This also reduces the temptation for people to use vehicles off the designated routes.

In some places, roads in the Elkhorns have been converted to trails, like this one, to allow for horse and foot travel. Just a short walk down this trail will bring you to your vehicle and the “designated route” on which you arrived. As you walk along, look for sagebrush, lupine, fescue, Rocky Mountain juniper, Douglas fir, buckwheat, and rabbitbrush among other plants inhabiting this grassland. Unfortunately, you may also note some weedy invaders.
HABITAT ALONG THE TRAIL

**Birds to look for:**

- Dipper
- Goshawk
- Sapsucker

**Plants to look for:**

- Cow Parsnip
- Dogwood
- Cottonwood
- Shooting star
- Larkspur
- Wild strawberry

**Animals and their signs to look for:**

- Red Squirrel (seed caches)
- Elk (seat – either pellets or consolidated; hoof tracks, beds, musty smell)
- Northern pocket gopher (mounds)
The Tree Swallow’s voice is a “cheet” or “chi-veet sound. They are seen gliding in circles catching insects on the wind ending with quick flaps and a short climb to their nests in the holes bored in trees.

The Long-tailed Weasel feeds mostly on small animals and birds. It kills by piercing the skull if the prey with its canine teeth.

The Showy Daisy, one of this area’s most common flowers, most likely will be seen in lightly wooded areas at low and middle elevations.

The Cow Parsnip is a coarse plant, which grows three to nine feet tall with three-bladed pinnate leaves. They grow mostly on moist ground.

The Western Meadowlark, state bird of Montana and several other states, prefers grassland and meadows. Its voice is flute-like, gurgling, and double noted.

Ruffed Grouse prefer deciduous trees and the margins of coniferous stands. In summer, they feed on berries and fruit, but in winter they take to the tree tops and forage on buds and twigs.

The call of an American Dipper is a loud zeet. They feed under water in streams where the water is flowing over gravel. They appear to be water skiing or walking underwater while feeding.
HABITAT: OPEN GRASSLAND

Birds to look for:
--- Mountain Bluebird
--- Tree Swallow
--- Western Meadowlark

Plants to look for:
--- Bluebunch Wheatgrass
--- Idaho Fescue
--- Yarrow

HABITAT: ROCKY CLIFF

Birds to look for:
--- Golden Eagle
--- Red-tail Hawk
AFTERWORD

We hope this brochure has enhanced your enjoyment of the Eagle Guard Station Interpretive Trails. Personnel of the Townsend Ranger District laid out the trail and produced the first edition of the brochure. The Montana Discovery Foundation and the U.S. Forest Service revised and expanded the brochure in 2010.

As you return home, please feel free to keep this guide as a souvenir or return it to the kiosk, pass it on to a friend, or otherwise reuse or recycle it. If you have questions or comments, please contact the Townsend Ranger District at (406) 266-3425.

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Persons of any race, color, national origin, sex, age, religion, or with any handicapping conditions are welcome to use and enjoy all facilities, programs, and services of the USDA. Discrimination in any form is strictly against agency policy and should be reported to the Secretary of Agriculture, Washington, DC 20250
HOW TO GET THERE:

From Helena, travel 26 miles southeast towards Townsend, Montana. Turn right just before the bridge going into Townsend, you are now on Indian Creek Road. At about 3 miles turn left. The road will lead you down a hill and into a narrow canyon. You will pass under a conveyor belt for the current mining operations in that area. The canyon is narrow and visibility can be poor as it winds through the Indian Creek Canyon. Please drive slowly and use caution.

You will come to an intersection, continue on the right until you come to road #4031. Turn left and stay on this road for 2 1/2 miles then turn right and travel ½ mile to the cabin.

From December 2 through May 15th, the last 4 miles are not open to motorized vehicles, access is by foot, ski, or horseback.

This trail is located in the beautiful Elkhorn Mountains.