

Designing for Interpretation

# Sparking Imaginations & Making Connections

*Visual guidelines  
for developing meaningful  
interpretation:  
pathways to aid in  
communicating the  
“meaning of the experience  
of the moment.”*

The Source: **Site Compatibility**  
The Structure: **Design & Layout**  
The Sense: **Getting the Message Across**





# The Source: Site Compatibility

## Visual goal of an exhibit:

- To enhance the site, not detract from it
  - Exhibit should “fit in” - yet draw the visitor to “come see”
    - read and participate

## How to accomplish?



# The Source: Site Compatibility

A site drives many aspects of an exhibit -

- ❖ Color palette
- ❖ Number, orientation, size of panels
- ❖ System of framing





# The Source: Site Compatibility

## Color Palette

General scheme comes from environment

Complimentary colors for emphasis – limited use





# The Source: Site Compatibility



## Kirwin It Was a Hard Life

*It was*

### A Tawdry Town?

Kirwin was unique among rough-and-ready mining camps in that it never had a single saloon or red-light district. For a short time Kirwin did have one colorful character named Louie the Fabulist. However, when it was discovered that her services went beyond fortune-telling she was asked to leave town.

As with other early-day mining camps, saloons and parlor games were popular pastimes and visitors were always welcomed with open hospitality.

### Gut-Busting Work

A miner's life was one of hard, gut-busting work. In earlier days they swung heavy hammers, "single-jacking" and "double-jacking" to drill holes into the hard rock for their powder charges. After the charges broke up the rock, miners mucked it into ore cars with shovels and pushed the cars out of the tunnels or used donkeys to pull them out.

Later miners used air and steam powered mechanical drills. Drilling produced clouds of rock dust that got into the miners' lungs entrusting them to an early death due to miners' consumption.

### Avalanche!

We had its rewards and disappointments for Kirwin's miners and their families. Although summers were pleasant in this high mountain valley, winters could be brutal with deep snows, freezing temperatures, long months of isolation and the threat of avalanches. Sitting at the base of steep 12,000-foot peaks, Kirwin was continually menaced by avalanches - the "white death."

On February 5, 1907, after several days of heavy snowfall, a massive avalanche roared down Brown Mountain sweeping the Tewksbury cabin into the Wood River, damaging the Tewksbury Store and killing three people. Most of the miners and their families decided they'd had enough. That spring they packed up and left. A few attempts were made to revive the mines in later years, but nothing came of them.

**Shoshone National Forest**

## A Colorado Native

### Prescribing catch and release allows fish to grow bigger, older, and wiser. They produce more offspring and are more valuable to the maintenance of healthy populations.

### Colorado River Cutthroat Trout Populations Decline

When fish stocking began in Rocky Mountain waters in the late 1800s, there were no concerns about the effects of nonnative fish on the only native trout in western Colorado, the Colorado River cutthroat. Today, however, Colorado River cutthroat are mostly found in pristine headwater streams, often above a barrier that blocks access from downstream nonnatives.

### What Happened?

Native fish have adapted to their environment over thousands of years, and can withstand forest fires, floods, droughts, and other natural disturbances. Nonnative fish evolved in different environments and may not respond well to natural disturbances. However, they are adapted to changes resulting from water withdrawals, reservoir construction, stocking programs, and land use changes.

Here at Colorado's Great Lakes, many changes to the local hydrology have encouraged the nonnative populations to thrive. Because of this, Colorado River cutthroat are now found only in isolated areas, and their ability to rebound from disturbances is reduced.

**ANR**

Arapaho and Roosevelt National Forests and Pawnee National Grassland

Caring for the Land and Serving People



# The Source: Site Compatibility

## Exhibit size

- Panel sizes
- Number of panels
- Orientation & position of panels





# The Source: Site Compatibility

## Framing System

- Fit the environment
  - Size
  - Native materials
- Enhance, promote theme(s) of the exhibit





# The Source: Site Compatibility





# The Structure: Design & Layout

Just as the human body has various systems working silently together so it may function; so certain visual principles subtly create the “experience” for the exhibit site visitor. Use of these principles increases absorption of the “experiential meaning of the moment.”

Principles such as:

Focal point & visual flow

Thirds rule

Simplicity

Contrast

Unifying Signage





# The Structure: Design and Layout

## Focal point & visual flow

Focal point - center of interest that draws first attention

Visual flow – varying levels (intensity, size, color) of graphics and/or text that move the eye throughout the panel beginning with the focal point.

Take into account culture you are designing for – english-speaking: “z pattern” – left to right; bottom right hand corner area - prime real estate, last impression

## How to accomplish?



# The Structure: Design and Layout

Focal point & visual flow.....

Graphics speak louder than words


- Main graphics
- Secondary graphics

## Room to Roam

Elk and deer winter range is habitat for winter survival. On the Routt National Forest, these areas are found on lower elevational, south-facing slopes that are primarily covered in mountain shrub vegetation.

When skiers go "out of bounds" they can stress overwintering elk as well as trespass on private lands. During the winter, please DO NOT recreate in elk and deer winter range.

## Steamboat Ski Area and Elk Winter Habitat




The area south of the Steamboat Ski Area on the Routt National Forest is important winter range for resident elk and deer herds.

## The Human Factor


- Human activity of any kind can displace and stress wintering elk.
- Loss of winter range on private lands due to development is causing elk winter range on public lands to become more important.
- Recreational disturbance in elk winter ranges may result in elk herds being pushed out of these areas and into areas of potential conflict, including residential developments and highways.

## Did You Know...?

- During the winter, elk feed on woody species, young spruce and aspen bark, and browse growth on mountain shrubs.
- Elk are subjected to harsh winter conditions including extreme temperatures and deep snow conditions.
- An elk's heartbeat normally slows during winter. Human disturbance could upset this energy conservation mechanism.
- Excessive energy loss in winter can cause death, and reduce the ability of some elk to reproduce in the spring.



Steamboat



## Laramie Peak - Charting A Course

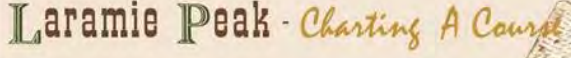



The first real mountain that most emigrants had ever seen was Laramie Peak at 10,272 feet. It was an important landmark as they crossed the plains in their trek across the west on the Emigrant's Road - also known as the Oregon Trail and the Mormon Pioneer Trail.

"Following the Platte we had our first view of the Rocky Mountains, Laramie Peak, said to be two hundred miles away. We were in sight of it for four weeks." - James H. Riches, 1854

Diaries of the emigrants almost always noted the first sight of the connected peak.


Emigrants used such landmarks to chart their course and mark their progress. The mountains were such a welcome sight after the weeks spent crossing the featureless expanse of the eastern part of the trail.

Laramie Peak could be made out as a purple haze on the horizon just west of Sears Bluff and let the early travelers know that they were approaching the Black Hills of the Laramie Range. It would take as many as eight days to reach a point on the Platte River opposite the peak.

Copyright © Laramie Peak Search by Dennis Wickham, 1999

Medicine Bow National Forest  
"Caring for the Land and Serving People"



## UNDERWATER ALIENS

### WHAT'S BITING?

The trout that most anglers enjoy catching here today are actually aliens to these waters. These brook trout, rainbow trout, and brown trout are native to the eastern U.S., Pacific Northwest, and Europe, respectively. The Platte River drainage, including Lake Owen, originally had very few native game fish.

After biologists carefully studied the lake in the 1940s, they began stocking trout with 10,000 two-inch brook trout fingerlings. Regular stocking of all three species continues today. The Wyoming Game and Fish Department rears the fish at one of ten hatcheries in the state.

### RAISING TROUT

The stocking process begins three years before the fish are delivered.

1. Evaluate river or lake.
2. Choose eggs.
3. Release into the world.

Fish survival rates are high because biologists have carefully matched water chemistry, temperature, food, and habitat to each species' needs.

### FAVORITE FOOD

Mayflies are a favorite food of trout. When mayflies emerge as adults from the lake bottom and dry their wings before taking flight, trout eagerly gobble them up on or near the surface.







This fishing pier was funded in cooperation with Wyoming Postulate for Disabilities.

Medicine Bow National Forest  
"Caring for the Land and Serving People"





# The Structure: Design and Layout

Focal point & visual flow.....

Color grabs and directs

Using contrast in color, value, saturation

**Growing Older and Wiser Fish**

Practicing catch and release allows fish to grow bigger, older, and wiser. They produce more offspring and are more valuable to the maintenance of healthy populations.

Please practice catch and release with extreme care. Colorado River cutthroat.

**"Catch" a Fish View**

- **Crisscross** when you approach the water to avoid being seen by sensitive fish.
- **Keep an eye on your shadow** (projected into the water).
- **Wear dull colors** that won't stand out in your surroundings.
- **Move like a shadow** - slowly and steadily.
- **Walk softly** to cut down on noise.
- **Remember** that carry into the water.

## A Colorado Native

### Colorado River Cutthroat Trout Populations Decline

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Here at Colorado's Great Lakes, many changes to the local hydrology have encouraged the nonnative populations to thrive. Because of this, Colorado River cutthroat are now found only in isolated areas, and their ability to rebound from disturbances is reduced.

**What would be lost if there were no more native species?**

Arapaho and Roosevelt National Forests and Pawnee National Grassland

Caring for the Land and Serving People

ANR USFS



# The Structure: Design and Layout

Focal point & visual flow.....

Font sizes

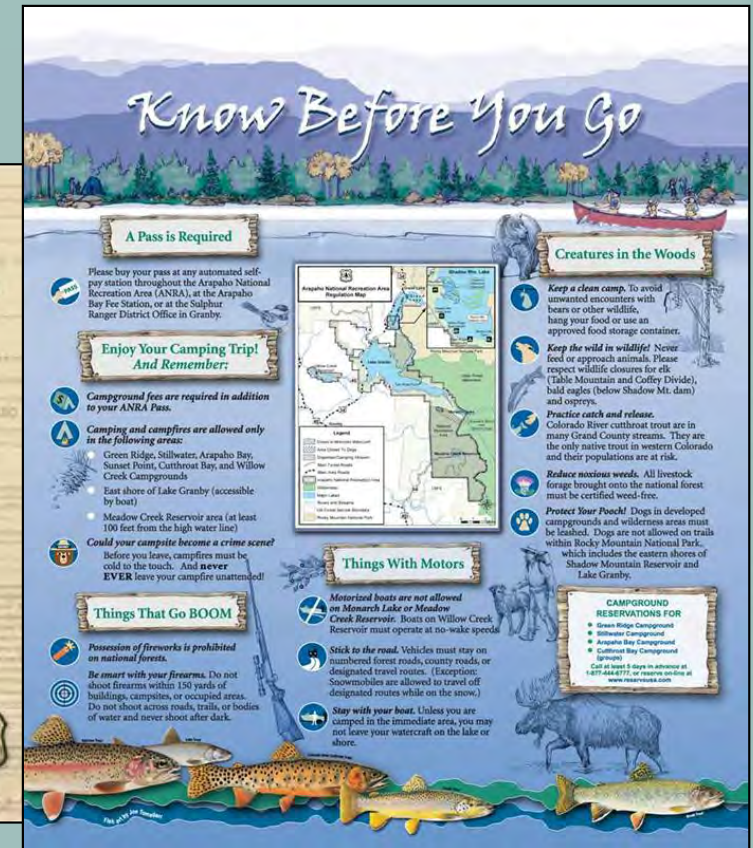
Larger, unique

fonts read first

Dropcap letters,

initial letter treatments

X,Y,Z space



Positioning:

Symmetry vs Asymmetry

Asymmetry is *dramatic*, grabs the attention more.

Symmetry is calming, stable.

Each has their purpose (information signs vs wayside or interpretive signs), but asymmetry is a good “come hither” tool.



# The Structure: Design and Layout

## NATIVE RESIDENTS

### Hang in a Fragile Balance

The forest lands surrounding Guanella Pass are home to wildlife that rely on specific habitats to survive.



**moonwort**  
(*Botrychium*)

Moonworts are small, primitive fern-like plants that pre-date dinosaurs. In Colorado they prefer sub-alpine and tundra prairie habitats. A new variety (photo) was first discovered on Guanella Pass in the summer of 2005. It is known only from the Pass and a few other locations in the world.

#### Budding Monkeyflower

(*Mimulus gemmiparus*)  
Budding monkeyflower prefers granite seeps, wet slopes and alluvium within upper montane and subalpine forests at elevations of 8,500 to 11,100 feet. It is found in the world only along Colorado's Front Range. It has a unique reproductive system of dropping small clones from its leaf axils.



Lorraine Webb



**Boreal Owl**

A resident of higher elevation forests in Colorado, the boreal owl uses "sit and wait" tactics for hunting small mammals like voles and mice.



**Boreal Toad**

Boreal toads breed in quiet shallow water in lakes, ponds, marshes, bogs, wet meadows, along streams, and even roadside ditches in elevations ranging from 8,000 to 12,000 feet.



**American Marten**

The marten resides in older forests with complex physical structures like downed trees and rock piles that provide denning sites and access to small mammal prey species.



**Simple Kobresia**  
(*Kobresia simplicicaulis*)

The locally-rare simple kobresia prefers moist gravelly tundra near the Continental Divide of the Front Range area of Colorado.



**Canada Lynx**

Colorado now supports a small population of this federally-chartered species and they have expanded to this area thanks to reintroduction.



**White-tailed Ptarmigan**

White-tailed ptarmigan are one of the few birds that live in the alpine zone year-round. In the winter they survive by feeding on small willow buds.



treadlighty!



## RAILROADS and the WEST TIE HACK MEMORIAL

### Hacked and Stacked

Ties were made from trees hacked and cut by hand...hence the name "tie hack." Tie hacks were a special breed of loggers who could quickly fell, limb a tree, and fashion the tie down to the specifications demanded.

A horse and wagon hauled the ties out. Cutting was done in the winter because it was easier to strip off bark and drag ties over the snow.



### Floating to Riverton

In the early days, ties were delivered to the railroad by floating down the Wind River on the annual "long walk to Riverton."

This walk took place just after the Wind River peaked in spring runoff so the ties would move swiftly downstream, but it was dangerous and difficult.



Floating ties down the Wind River



The jams were risky and dangerous situations.



Workers measured and measured the logs, making them fit for the river walk.

Ties were released into the river current along with a driver who poled the ties down river. Poor timing and high water could result in injuries, drownings, and an entire season of timber cutting lost.



Spikes chains held back water and new railroads were built by a 1911 drive.

### A Lost Art

Tie drives and tie hacks disappeared being replaced by gas powered sawmills, sawyers, cutters and skidders that pulled the logs to a mill.



Railroads closed as the trucking industry flourished and gasoline was cheap. With no market for railroad ties, the business died.



Wooden water chutes, or called loggers were built to carry logs down one to several miles to create some river transport.



The hacks were paid 12 cents per acre in 1911 to make loggers so scarce in the 1930s. By World War II the hacks earned almost 20 cents per acre. An old-time tie hack cutting 40 trees could earn \$22.00 day!

This memorial reminds us of the hard-working men and their families whose sweat and toil contributed to the first transcontinental railroad linking the country from coast to coast.





# The Structure: Design and Layout

Analyze the “flow” .....

## A Pathway for the Ages

The Lower Madison River Corridor

### A Cultural Mosaic Crafts the Bozeman Trail

Imagine this place a long time ago (10,000 – 11,000 years to be exact), when now-extinct horses and camels roamed the area and people of the Folsom Culture hunted bison. Now imagine a few thousand years later when people of the Plains, Great Basin and Interior Plateau gathered food and tool materials here in the spring and summer. Much later, Blackfeet Indians claim this territory, displacing the Shoshone and Salish groups around 1800. Soon after, Lewis and Clark's explorations pave the way for fur trappers seeking to exploit new-found resources. By 1810, the cultures of the ages had shaped a thoroughfare that became the Bozeman Trail.



### GOLD Swells the Traffic

With the discovery of gold at Bannack in 1862 and later at Virginia City, traffic along the Bozeman Trail increased rapidly. The route was quickly improved and by 1865, the County Commissioners agreed "to survey and lay out a public road as per petition of citizens of the east side of Madison Valley."



### What Drew You Here Today?

This natural travel corridor profoundly influenced the prehistory and early history of this area. Over time, it has provided tools for the hunter, food for the hungry, and gold to quench the thirst of the prospector. Today it attracts campers, anglers, and river floaters.

*This pathway will continue on into the ages. How will you shape its future? Please help protect your public lands.*

Bureau of Land Management



## The Bridge Business

Madison River Toll Bridge

### Building Commerce

In the latter half of the 19th century, the Bozeman Trail was indispensable to the region's commerce, connecting the mining camps of Madison Valley to the agricultural goods of the Gallatin Valley.

In those days, route construction was often done by entrepreneurs who cleared a path, built a bridge, or constructed a ferry – and then charged anyone who passed. In 1867, Milton and Robert M. Canaday were given the authority by the territorial government to build a bridge across the Madison River, where you are standing today. The Canadays were also granted the right-of-way to a four-mile corridor along each side of the river, ensuring them a virtual monopoly of the canyon and river crossing.



William H. Jackson's photograph of the Madison Toll Bridge, 1871 (courtesy of the USGS)

### From Toll Bridge . . .

Milt and Bob invested \$400 in the bridge, and sold it 8 years later to Paul D. Hayward for the same amount. Over time, the bridge deteriorated, and on May 18, 1882, the local paper reported, "On Thursday of last week as a freighter was crossing the Madison bridge, he heard an ominous cracking of timber, and shipping up his team, succeeded in getting over just as one span of the bridge gave way."

### . . . to Free Bridge (to Gone)

The bridge was repaired and two years later, Madison County bought it, making it a free thoroughfare after nearly 20 years. The bridge washed away in the 1880s and only the pilings and approach ramps remain today.

*Look downstream to spot the remnants of the Madison River bridge business.*



Bureau of Land Management





# The Structure: Design and Layout

## The Thirds Rule

Generally a panel should be:

1/3 text

1/3 graphics (lean here)

1/3 empty space

**CRUCIAL**

## You're Standing on the 45th Parallel

**Hipp-a Who?** The system of latitude and longitude actually dates back to 500 B.C. and a Greek astronomer, Hipparchus.

**What's So Special About This Spot?** Your feet are placed on a line that has played a key role in navigating the earth for over two thousand years! The 45th Parallel is not a visible line, but a mapping tool that represents a contour halfway between the Equator and the North Pole. It was originally used by seafarers navigating the ocean wilderness, with only the sun and stars to guide them.

**What Goes Around Comes Around** Today, even though a myriad of global technologies can pinpoint our location on earth to within 12 inches, the 45th Parallel is still a valuable way of connecting ourselves to other places on the planet. Imagine a line that starts at your feet and then joins the prairies of South Dakota, the north woods of Maine, the wine country of France, the deserts of Mongolia, and then back again at your feet.

**What started out as a mapping tool now connects a diversity of landscapes and cultures around the globe.**

Revised over two millennia, the 45th Parallel has actually shifted slightly north about ten miles due to the bulge at the equator caused by the earth's rotation.

45th PARALLEL  
HALFWAY BETWEEN  
EQUATOR & NORTH POLE

Shoshone National Forest  
Caring for the Land and Serving People

## Fleeing for Freedom

### Which Way Would You Go?

Abandoning hope for freedom, the Nez Perce left their homeland on June 15, 1877, and fled toward Canada, soldiers at their backs. Because their flight is undocumented, the actual pathway through this portion of the Absaroka Mountains remains unknown. The high mountain terrain offered faster travel, but the low ravine provided cover from detection. Which would have been the best escape route? Based upon Nez Perce quotes and Army scouts who pursued them, most historians believe they chose the ravine route.

**The Nez Perce National Historic Trail**  
Although the Nez Perce eventually surrendered in Montana and Idaho, this trail is part of the sacred land they still use and a source of spiritual strength. The route is designated as the *Nez Perce National Historic Trail* and honors the Nez Perce struggle for sovereignty.

**"Nee-mee-puu"**  
The name "Nez Perce" was assigned to this tribe by an interpreter with Lewis & Clark's expedition and translated by early French Canadian to mean "pierced nose." This practice was not common to the Nimpem, whose name means "the people" or "the people traveling."

Commanding Officer and Staff, Department of the Columbia, 1877-78, General Oliver O. Howard is seated, front row.

Chief Joseph (far right), first row and other Nez Perce Chiefs, circa late 1860s, early 1870s.

The Clark Fork of the Yellowstone River emerging out of the Clark Fork Canyon east of the interpretive site. This is the east door out of the ravine thought to be the Nez Perce escape route.

Chief Joseph's Band women leading the horse parade, July 4, 1894.

Shoshone National Forest  
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# The Structure: Design and Layout

## Simplicity

- Keep designs uncluttered
- Keep text to no more than 75 words – 150 maximum if using captions, smaller fonts for secondary text

**Hells Canyon National Recreation Area**  
*Canyon country... not for the faint of heart*

**Hells Canyon has power written all over it.**  
From the craggy Seven Devils to the violent river below, there is nothing gentle about this place. It's a region that demands respect, testing the hardest of living creatures. *But hardy souls have indeed scratched out a living here.*

Artifacts provide evidence of prehistoric settlements in the canyon along the Snake River.

For thousands of years, Native Americans found shelter from the winter snow deep in the canyon, hunting game on the canyon rims.

What brought you here?  
Today, thousands of people are drawn to Hells Canyon, perhaps for the thrill of facing the river's rapids, or to study the rugged beauty of the canyon. Maybe you're looking for a bit of solitude, or an opportunity to seek adventure in this vast, rugged landscape.  
*More than likely, what you'll find is not what you were expecting... but much more.*

American homesteaders found a way of life, grazing sheep and cattle on the mountain slopes, raising crops on the benches and river bars.

Wallowa-Whitman National Forest U.S. Forest Service

**Reduce, Reuse, Recycle**  
*Change how you live, give us more*

**Less is More**  
*Resources are limited.*

**Reuse**  
*Before you buy, think it out. Can what you're throwing out be put to other use?*

**Recycle**  
*You can't throw away the trash. You can only put it off.*

**Reduce, Reuse, Recycle**  
*What You Can Do*

**84% Did You Know?**



# The Structure: Design and Layout

## Contrast

- Use images behind text carefully
- Shady areas – light background with dark text
- Sunny areas – dark backgrounds with light text

### Managing Habitat Takes Action

**Once the Largest Herd in Colorado**

As you hike this trail, keep your eyes peeled for bighorn sheep. The Tarryall herd found here has over 250 sheep. It is the source of 90% of all other herds in the state. Look for them in openings, feeding on grasses and grass-like plants or on steep slopes where they are safe from predators.

**Habitat Dwindling**

In the past, naturally occurring fires created openings, promoted growth of grasses and other vegetation used for food, and allowed the sheep to see on-coming predators in time to escape. During the last century, fire suppression caused trees and shrubs to grow into these open meadows.

**Taking Action to Increase Openings**

To improve habitat, the U.S. Forest Service and Colorado Division of Wildlife (CDOW) are taking action to increase openings by cutting timber and burning under carefully controlled situations. This forest opening was created in an effort to improve habitat for the Tarryall herd and encourage healthy populations of bighorn sheep in the future.

**Pike National Forest**  
Caring for the Land and Serving People

**UAS**

*Text on the left side of the brochure:*

Bighorn sheep horns are not shed like antlers - the bigger the curl, the older the ram. Female sheep have spike-like horns.

Their precocious perches, on ledges and cliffs, bison-like vision and keen sense of smell, keep bighorn sheep safe from all but the most determined predators which include mountain lions, bobcats, coyotes, and golden eagles.

The grassland built in 2004 by the U.S. Forest Service and CDOW. Bighorns continue to use these openings and are finding new meadows in these openings and sheep prefer to eat, demonstrating an increase in use by bighorn sheep.



# The Structure: Design and Layout

## Unifying Signage

Repeat graphic elements, layouts to promote a sense of “corporate image” within groups of panels.

### TAKING ON WATER

**A Hot Job**  
On the train a fireman was responsible for shoveling coal from the tender into the boiler and transferring water from the tender to the boiler. His most critical job was to check the water gauges to prevent the boiler from running dry and causing a huge explosion.

**STEAM POWER**  
You are standing at the site of Lake Station which provided water, critical for steam power, to passing trains. Up to nine thousand gallons of water from this tank were pumped into the “tender,” located behind the engine, which powered the train. The water was heated by coal in the boiler to create steam which ran the engine. The release of steam is what gave the train the characteristic “Choo Choo” sounds.



1 The water tank is located at the rear of the locomotive. 2 The pump is located at the front of the locomotive. 3 The boiler is located in the middle of the locomotive.

**Water tank at Lake Station:** A water tank to the east of the tank could maintain the pump and keep the tank full of water. Look carefully for remnants of the cables and pipe that carried water from Lake Owen to the tank.

**Locomotive #1 with tender near Lake Owen, 1909**

This was one of 18 stops along the line between Laramie, Wyoming and Coalmont, Colorado. All the tanks along this line held 40,000 gallons of water. While there was no tank at Coalmont, there was a well which apparently supplied water quickly enough to fill the tenders as they came through.

**Union Pacific Consolidation G-40 No. 533, taken on May 7, 1955 near Fortpsak. After World War II, the first diesel engine appeared on the line. By 1950, diesel engines replaced steam engines, and the water tanks were abandoned.**

**MEDICINE BOW National Forest**  
Caring for the Land and Serving People

**UAS**

### MOCCASIN PRINTS TO RAILROAD TRACKS

**EARLY TRAILS**  
Long before these tanks were built, herds of Northern Cheyenne, Northern Arapaho, Eastern Shoshone, White River Chey, and Ojibwa Sioux traversed the basin around here. The Medicine Bow Mountains were likely named after the vision when the tribes gathered to collect wild rice from the area.

During the late 1800s, railroad construction gangs, miners, and settlers traveled to western Wyoming with the building of the Transcontinental Railroad.

**CREATION OF THE FOREST SERVICE**  
As the construction of the Transcontinental Railroad progressed, hundreds of its workers cut railroad ties in this area. This over-logging caused the erosion and steep runoff in streambank erosion. The 1890s also brought a big boom in the cattle and sheep industry, with many ranches grazing on open lands.

This unregulated use of the land and continued damage to the resources led to the creation of Forest Reserve later called National Forests. In 1902, the Medicine Bow Forest Reserve was established.

**A NEW RAILROAD**  
By 1901, plans for a rail line to the Gold Hill Mine west of Coalmont were approved with the incorporation of the Van Horn-Miller Syndicate. When it was realized that the mine wasn't producing enough gold to support rail service, the line was built to the coalfields near Walker, Colorado. Initially planned as a narrow gauge railroad due to the steep elevation gains, standard gauge was selected with the route change.

Though it would take until 1911, the Laramie, Harts Peak, and Pacific finally made the T11 route to Coalmont, Colorado and was one of the highest standard gauge railroads in the U.S. reaching 10,555 feet in elevation at Fortpsak Station.

**THE MEDICINE BOW NATIONAL FOREST**

- 1,000,000 acres
- 100 miles long
- 100 miles wide
- 100 miles high
- 100 miles deep
- 100 miles wide
- 100 miles high
- 100 miles deep







# The Structure: Design and Layout

## MORE THAN A SCENIC VISTA



**Snowy Range Scenic Byway**

Take a drive on the Snowy Range Scenic Byway and learn about the plants, animals, and history as you travel through the beautiful Rockies.

**THE SNOWY RANGE**

The mountains you see on the horizon are part of the Snowy Range. At 12,013 feet, Medicine Bow Peak is the highest point in the range.

The Snowy Range includes several permanent snowfields. They are important in providing water to streams through snowmelt. This water supports trees, plants, wildlife, wetlands, and people.

Charles Bellamy, one of the surveyors for the Helena, Park, Laramie, and Pacific Railroad, explored the Snowy Range for water supplies in the early 1900s. Bellamy, at 56, became the nation's first licensed professional engineer and land surveyor in 1907.

Lake Marie, along the Snowy Range Scenic Byway, was named after Bellamy's wife Mary, the first woman elected to the Wyoming State Legislature in 1919. She led Wyoming's effort to pass the nation's 17th amendment, giving women the right to vote.

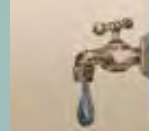
The first paved road over the range was completed in 1926 and is now the Snowy Range Scenic Byway.

The road was often covered by snow and had to be "fed over" in the spring.

**MEDICINE BOW National Forest**  
Caring for the Land and Serving People



## FOREST TO THE CITY



**YOU can play a part in conserving water!**

- Turn off the water while brushing or washing teeth.
- Be sure all leaks of water in the driveway are fixed.
- Fix leaky faucets and toilets.
- Water lawns only when necessary.
- Install a water-saving showerhead.
- Be sure all leaks of water in the house are fixed.
- Water lawns only in the early morning or late evening.

**WATER FROM THE FOREST**

Water is important in the high altitude forests of the West where annual rainfall is only 10-15 inches. Water collected during spring runoff from mountains cascades in streams. Lake Chapin, at 9,000 feet, feeds this water for lawns and gardens.


The system must be large enough to collect a year's worth of water in a few short weeks during spring when the snow is melting.

**GRAVITY MOVING WATER**

The people of Chappin are dependent on water from the forest. The water system can gravity to transport water across two mountain ranges and over 90 miles through a series of pipes, tanks, valves, and reservoirs.

Water is transported from the forest to the city through a series of pipes, tanks, valves, and reservoirs.

**MEDICINE BOW National Forest**  
Caring for the Land and Serving People



## UNDERWATER ALIENS



**What's Biting?**

Do you know what small aquatic insects, including hatches, are eating the small, young fish in the streams, rivers, and lakes of the western U.S.?

**FAVORITE FOOD**

Magdalen is a favorite food of trout. When magdalen emerges as adults from the lake bottom and fly their wings, before taking their first eagerly gulped breath, they are or near the surface.

**MEDICINE BOW National Forest**  
Caring for the Land and Serving People






# The Structure: Design and Layout

## The Catchy Title

**Catchy Subtitle**

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**Catchier Subtitle**

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**Fonts:** Title, Subtitle: Colonial Dams, main body: captions: Baskerville Old Face, Drop-cap letters, forest name: American Scribe

**Images:** Daniel Boone National Forest, various process diagrams, people at a site, a stream.

**Text:** NATIONAL ARCH, Daniel Boone NATIONAL FOREST

## The Catchy Title

**Catchy Subtitle**

>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper utcept lobortis nisl ut aliquip ex ea commodo consequat.

**Catchier Subtitle**

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**Catchiest Subtitle**

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**Fonts:** Title, Subtitle: Colonial Dams, main body: captions: Baskerville Old Face, Drop-cap letters, forest name: American Scribe

**Images:** Daniel Boone National Forest, sunset, sailboat, people at a site, a stream, a fish.

**Text:** DAVE RUN LAKE, Daniel Boone NATIONAL FOREST

## The Catchy Title

**Catchy Subtitle**

>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper utcept lobortis nisl ut aliquip ex ea commodo consequat.

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**Fonts:** Title, Subtitle: Colonial Dams, main body: captions: Baskerville Old Face, Drop-cap letters, forest name: American Scribe

**Images:** Daniel Boone National Forest, people in a boat, various process diagrams, a stream, a turtle.

**Text:** LAUREL RIVER LAKE, Daniel Boone NATIONAL FOREST

## The Catchy Title

**Catchy Subtitle**

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**Catchier Subtitle**

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**Fonts:** Title, Subtitle: Colonial Dams, main body: captions: Baskerville Old Face, Drop-cap letters, forest name: American Scribe

**Images:** Daniel Boone National Forest, Daniel Boone illustration, various process diagrams, a stream, a turtle, a waterfall.

**Text:** OUR FOREST, Daniel Boone NATIONAL FOREST



# The Sense: Getting the Message Across

*Interpretation is a communication process that forges emotional and intellectual connections between the interests of the audience and the inherent meanings in the resource*

*National Association of Interpretation*

## Communication Techniques:

**3-30-3 rule**

**Typeface and text**

**Saying it visually**

**Color my mood**



# The Sense: Getting the Message Across

## 3-30-3 Rule

Visitors should be able to grasp the gist of a panel in 3 seconds, get a bit more detailed message in 30 seconds, and get the total message in 3 minutes.

- ☞ Intriguing title, subtitle messages, graphics
- ☞ Captions
- ☞ Secondary text

**Is This Forest Healthy?**

**Red to Dead**  
As you look across the landscape, you may see red needles or dead trees. In some places where fire has been suppressed and forest management activities have been excluded, trees have become extremely dense, creating competition for water and sunlight. Drought, windthrow, and old age have also added more stress on trees.

**Fuel for Fires**  
Insects such as the mountain pine beetle and spruce beetle thrive on trees stressed under these conditions. These trees are the first to be hit by beetles and die within a few months of a successful attack. Dead trees become fuel hazards, thus increasing the probability of devastating wildfires.

**Managing Forests Improves Health**  
A healthy forest is important because it has a natural resistance to insects and disease. Professional foresters help maintain healthy forests by reducing the density of trees using both natural and prescribed fire. Foresters also cut and thin trees to improve forest health and vigor, increase diversity of wildlife habitat, provide recreation opportunities, provide wood to the public, reduce fuel hazards and grow new trees. Trees are America's renewable natural resource.

**Predators and Prey of the Beartooths**

The reintroduction of wolves into the Yellowstone ecosystem reshuffled the predator-prey relationship that had developed over the last one hundred years.

**Who's Best Now?**  
Wolves are highly social animals and live in packs numbering from 2 to 12, all of whom have roles to play in the pack. They hunt by using their keen senses.

**It's a Toss-Up**  
It's a tough tug for grizzly bears. They are powerful and can down anything in their path, but they often find themselves outwitted by wolves.

**Who's got the Run?**  
Elk and deer get more on the move, increasing in seasonal weight and staying in smaller groups. These new patterns mean changes for the vegetation on which they browse.


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# The Sense: Getting the Message Across



## HIGH HOPPERS

### FROG-CICLES

Believe it or not, one amphibian of the high-country actually has a way to survive the winter even if it freezes!

The wood-frog, a remnant from the Ice Age, can survive at temperatures well below freezing during hibernation by storing extra sugars in its cells. This high concentration of sugar acts as antifreeze, and lowers the freezing point. Up to 1/3 of its body fluid may still freeze, and yet come spring, it is able to thaw out and hop away to find a mate.

The boreal toad is the only toad to live at this elevation of 8,959 feet.

### OLDER THAN DINOSAURS





The wood frog can be identified by its "robber's mask," and the "quark quark quark" of its mating call. The only frog to be found north of the Arctic Circle, it can mature from an egg and be transformed to a frog in less than 45 days!

After the eggs are fertilized, clouds of black tadpoles may be seen in shallow water. Please don't disturb them.

Indicators of a Healthy Environment

The presence of frogs, toads, and other amphibians is an indicator of a healthy environment.

Biologists and experts in the field believe that the decline of amphibians is caused by many factors including fungal disease and acid rain.



## Where Art Thou, O Boreal Toad?

### Declining Populations

The health of amphibian populations has long been considered by scientists as an indicator of the health of the environment they inhabit. Amphibians are some of the most susceptible species to adverse changes in the environment.



In recent years scientists have discovered an amphibian disease called chytridiomycosis (*Batrachochytrium dendrobatidis*). They suspect it might be the cause of the dramatic decline in boreal toad and other amphibian populations since 1970.

The boreal toad is presently listed as an endangered species by both Colorado and New Mexico and is a protected species in Wyoming.





### Recovery Team to the Rescue

As a response to the decline and the endangered species listing, the Colorado Division of Wildlife created a multi-agency recovery team which includes the following agencies: U.S. Forest Service, U.S. Fish and Wildlife Service, National Park Service, Environmental Protection Agency, New Mexico Department of Game and Fish, Wyoming Department of Game and Fish, Bureau of Land Management, and U.S. Geological Survey. This team has provided vital leadership and direction in the management of the species in Colorado, New Mexico, and Wyoming.

White River National Forest  
Caring for the Land and Serving People





# The Sense: Getting the Message Across

## Typeface and text

☞ Use slab or san serif fonts

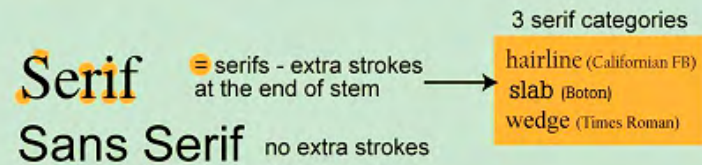
From the USFS accessibility checklist:

Slab serifs present a feeling of strength and foundation, wonderfully legible in poor printing conditions, good for headlines.

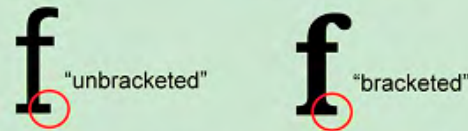
Sans serifs great for headlines and posters, but not a good idea for lots of printed text, no serifs makes text less readable.

Paradoxically, opposite is true for on-screen reading, where sans-serif tend to be easier to read.

## Two main typeface categories:



**Slab Serif** a "square serif" generally same width as or larger than stem width.



bracket = curve or wedge-like connection between stem and serif...note the "square serif" however....



# The Sense: Getting the Message Across

## Typeface and text....

- ⌘ Keep in upper and lower case
- ⌘ Avoid large amounts of "fancy", italic, or condensed fonts
- ⌘ Spacing between lines of text, leading

### HIGH HOPPERS

#### FROG-CICLES

Below it or not, one amphibian of the high-country actually has a way to survive the winter even if it freezes!

The wood frog, a remnant from the Ice Age, can survive at temperatures well below freezing during hibernation by storing extra sugars in its cells. This high concentration of sugar acts as antifreeze, and lowers the freezing point. Up to 1/3 of its body fluid may still freeze, and yet come spring, it is able to thaw out and hop away to find a mate.

The boreal toad is the only toad to live at this elevation of 8,000 feet.

#### OLDER THAN DINOSAURS

The boreal toad has been around longer than dinosaurs. However, like several amphibians, they are disappearing at an alarming rate. The boreal toad is listed as a sensitive species in Wyoming.

Usually occurring between 8,000 and 11,900 feet in elevation, this toad is dependent on wet areas like this bog for breeding. During the spring melt, it may be seen hopping across snow banks to get near the water, sending out a mating call that sounds like a peeping chick.

After the eggs are fertilized, clouds of black tadpoles may be seen in shallow water. Please don't disturb them.

MEDICINE BOW National Forest UAS  
Caring for the Land and Serving People

## What Do You Know About Boreal Toads?

### Do you know....

#### ...what they look like?

The boreal toad is Colorado's only alpine species of toad. Female toads generally grow 3-4 inches from the tip of their snout to the end of their spines. Both sexes appear warty and usually have a light stripe along the middle of the back. Juvenile toads may have red warts. Yearling toads generally have orange toe tips. Tadpoles are typically jet black. Egg masses often appear as single or double rows of black pearls.

#### ...what they eat?

Adults and young toads mainly eat insects such as ants, flies, mosquitoes, grasshoppers, beetles, and moths. Tadpoles eat algae and detritus.

#### ...what they sleep during the winter?

During the winter, boreal toads hibernate in chambers either below the frost line or where there is flowing water. Toadlets commonly use beaver lodges and dams while adult toads may hibernate in abandoned small mammal burrows such as those made by the golden mantled squirrel.

#### ...where they live?

A member of the Western toad species, the boreal toad occurs throughout most of the western portion of North America. Their historic range included southern Wyoming, central Colorado, and northern New Mexico at elevations between 7,000-12,000 feet.

Lodge-pole pine, spruce-fir forest, and alpine meadows are their preferred habitat. They breed in beaver ponds, shallow lakes, marshes, ponds, fens, and wetlands with sunny exposure.

#### ...how long they live?

Boreal toads live to be 9-12 years and begin breeding between 2-4 years of age. As is true for most amphibians, larval (egg and tadpole) and juvenile boreal toads experience severe mortality. Individuals that survive the early years may live to be nine years or more.

Natural predators include but are not restricted to: the raven, crow, gray jay, spotted sandpiper, hawk, western terrestrial garter snake, tiger salamander, red fox, badger, raccoon, and predacious diving beetle. Fortunately boreal toad eggs and tadpoles are toxic and taste bad to most predators including trout. Predation and adverse environmental conditions are largely responsible for mortality during the early life stages.

#### ...how they reproduce?

Breeding varies with elevation but generally occurs between mid-April through early June. Females typically lay 3,000-8,000 eggs. Development takes between 2-3 months depending on temperature. Metamorphosis, the change from tadpole to toad, occurs in late July to early September.

Eggs are deposited in the pond in the spring and hatch out to tadpoles that grow through the summer. After metamorphosis the toadlets emerge from the pond in late summer or early fall.

The toadlets then move out of the pond and find areas to hibernate for the winter and emerge as young toads the following spring.

White River National Forest UAS  
Caring for the Land and Serving People

**Fancy Fonts FANCY TOO**

*Italic - some italic easier to read than others*

**CONDENSED FONTS Condensed & Fancy**

Leading between lines  
too far, hard to carry on thought....

Leading between lines  
too close, hard to read, looks cramped



# The Sense: Getting the Message Across

## Typeface and text....

- ∞ Character height as opposed to “font size”, all fonts are not created equal!

Suggested typeface size for interpretive exhibits at a viewing distance of 1-4 feet.

- Titles: 72 - 60 point (3/4")
- Subtitles: 48 - 40 point (1/2")
- Body Text : 36 - 30 point (3/8")
- Captions: 24 - 18 point (1/4")

These are National Park Service suggested sizes for people with visual impairments.

Character height, as opposed to font size: All font sizes are not created equal!

The following are all the same font size, but look different!

- Test
- *Test*
- *Test*
- Test
- **Test**
- **TEST**

**BORN TO BUILD**  
The Beaver

The beaver (*Castor canadensis*) is America's largest rodent. Adults can weigh up to 60 pounds and measure 25-30 inches in total body length. It is more at home in water than on land, with its webbed hind feet and lips that seal behind the incisor teeth. The flat tail is about 9-10 inches long and is used like a rudder. In addition, the eyes, ears and nostrils of the beaver also have special adaptations for its largely aquatic lifestyle.

They prefer sites with a constant water level, hence they trail for damming streams. Beavers will construct a 'lodge' in either the stream bank or in the middle of the pond they have helped to create. They live in social colonies of four to eight related animals, typically a pair of adults, yearlings and the young kits.

**What's for Lunch?**  
Beavers feed on vegetation such as willow, aspen, sedges and grasses. The stomach enzymes that allow them to digest coarse vegetable matter into proteins develop in their first year of life. Until then they are completely dependent on their mother for survival.

Beavers are mainly nocturnal and are active year round. They will also store food, submerged, for the winter when the pond freezes.

Beavers have been active around Blackhawk Lake in the past. Look for beaver at Blackhawk Lake with signs of beaver activity.

The Black Hills National Forest considers the Beaver a Management Indicator Species (MIS), which means they are used as a measure of riparian habitat health and stream function.

A beaver lodge has several entrance and exit tunnels. Inside the lodge is an earth floor where the beaver sleep and raise their young.

BLACK HILLS National Forest  
US  
Caring for land and people.



# The Sense: Getting the Message Across

Say it visually - as much as possible

- ⌘ Graphics should reveal the hidden, not duplicate the environment, tell the story
- ⌘ Tactile elements visual plus sensory

## TAKING ON WATER

**A Hot Job**  
On the train a fireman was responsible for shoveling coal from the tender into the firebox and transferring water from the tender to the boiler. His most critical job was to check the water gauge to prevent the boiler from running dry and causing a huge explosion.

### STEAM POWER

You are standing at the site of Lake Station which provided water, critical for steam power, to passing trains. Up to nine thousand gallons of water from this tank were pumped into the "tender," located behind the engine, which powered the train. The water was heated by coal in the boiler to create steam which ran the engine. The release of steam is what gave the train the characteristic "Choo Choo" sounds.

- 1 The water gauge for use in the boiler. It shows the water level in the boiler and the tank, helping the fireman know when to refill the tank.
- 2 The water tank in the tender, which stores water for the boiler.
- 3 The water gauge in the boiler, which shows the water level in the boiler.

Locomotive #1 with tender near Lake Owen, 1909

**Water tank at Lake Station:** A water tank in the wood cists in the could maintain the pump and keep the tank full of water. Lock carefully for remnants of the cists and pipe that carried water from Lake Owen to the tank.

This was one of 18 stops along the line between Laramie, Wyoming and Coalmont, Colorado. All the tanks along this line held 40,000 gallons of water. While there was no tank at Coalmont, there was a well which apparently supplied water quickly enough to fill the tenders as they came through.

Union Pacific Consolidation 2-8-0 No. 533, taken on May 7, 1905 near Fortpeck. After World War II, the first diesel engine appeared on the line. By 1960, diesel engines replaced steam engines, and the water tanks were abandoned.

**MEDICINE BOW National Forest**  
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# The Sense: Getting the Message Across

Color my mood

Harmony with site, but also

- ⌘ Evokes emotion
- ⌘ Sense of history

## Mount Lowe

### Scenic Railway (1893-1936)

Mt. Lowe scenic railway was considered an engineering marvel and southern California's most popular tourist attraction during its heyday, carrying a total of 3.1 million visitors.

**LEGEND**

- Trail
- Scenic Railway
- Public Road
- Historical Site
- Historical Building
- Historical Structure
- Historical Foundation
- Historical Foundation
- Historical Foundation

Call for more information, visit our website, or contact our tour operator.

## Sunset Ridge Trailhead

### Mt. Lowe Road and Sunset Ridge Trail

Begin your trailhead at a paved fire road opens up the front range of the San Gabriel Mountains. The Mt. Lowe Road winds its way up about 9 miles to Sunset Ridge. Trailhead between San Gabriel Peak and Occidental Peak. Sunset Ridge Trail also begins here and offers stunning views, pine forests, and deep canyons.

#### Travel the Trail into History

The Sunset Ridge Trail provides access to the ruins of the Mt. Lowe Scenic Railway, Echo Mountain, and the Alpine Tavern. Popular in southern California from 1893 to 1936, these locations were later destroyed by winds, floods and fire.

On Echo Mountain are the foundations of Echo Mountain House and the chimes. A fire swept Echo mountain in 1900, leveling all here for a lunch stop among the ruins. Picnic tables are now built where that pulled the cars up the steep incline from Rubio Canyon below.

Along the historic railroad and you will pass sites that attracted tourists of yesteryear: Granite Quarry, Horsehoe Curve, and the site of the Great Conular Bridge. Near the Low Taverns which last burned in 1936. Almost all signs of some spruce still remains its hospitality, welcoming hikers with its shade, water, restrooms, and picnic tables.

#### Things to remember when recreating in the area...

**Don't Overlook**

- Take in the views. Don't miss the views from the trail.
- Don't forget your water. There are no water sources on the trail.
- Don't forget your snacks. There are no food sources on the trail.
- Don't forget your trash. There are no trash cans on the trail.
- Don't forget your map. There are no maps on the trail.
- Don't forget your first aid kit. There are no first aid kits on the trail.
- Don't forget your sunscreen. There are no sunscreen dispensers on the trail.
- Don't forget your hat. There are no hats on the trail.
- Don't forget your shoes. There are no shoes on the trail.
- Don't forget your clothes. There are no clothes on the trail.
- Don't forget your gear. There are no gear on the trail.
- Don't forget your tent. There are no tents on the trail.
- Don't forget your sleeping bag. There are no sleeping bags on the trail.
- Don't forget your stove. There are no stoves on the trail.
- Don't forget your fuel. There are no fuel on the trail.
- Don't forget your water filter. There are no water filters on the trail.
- Don't forget your water purification tablets. There are no water purification tablets on the trail.
- Don't forget your water purification system. There are no water purification systems on the trail.
- Don't forget your water purification pump. There are no water purification pumps on the trail.
- Don't forget your water purification filter. There are no water purification filters on the trail.
- Don't forget your water purification cartridge. There are no water purification cartridges on the trail.
- Don't forget your water purification membrane. There are no water purification membranes on the trail.
- Don't forget your water purification ceramic. There are no water purification ceramics on the trail.
- Don't forget your water purification carbon. There are no water purification carbons on the trail.
- Don't forget your water purification ion exchange. There are no water purification ion exchange on the trail.
- Don't forget your water purification reverse osmosis. There are no water purification reverse osmosis on the trail.
- Don't forget your water purification ultrafiltration. There are no water purification ultrafiltration on the trail.
- Don't forget your water purification nanofiltration. There are no water purification nanofiltration on the trail.
- Don't forget your water purification microfiltration. There are no water purification microfiltration on the trail.
- Don't forget your water purification ultrafiltration. There are no water purification ultrafiltration on the trail.
- Don't forget your water purification nanofiltration. There are no water purification nanofiltration on the trail.
- Don't forget your water purification microfiltration. There are no water purification microfiltration on the trail.

**Parties**

Parties are not allowed on the trail. Please respect the quiet and solitude of the area.

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Parties are not allowed on the trail. Please respect the quiet and solitude of the area.

## Good Stuff From Rocks

Cathedral Cliffs      Black Mountain Elevation 11,952 ft      Indian Peak Elevation 9,254 ft      Hunter Peak Elevation 8,254 ft

### Meeting of the Mountains

You are standing on one mountain range and looking out on a completely different mountain range. The site before you is the volcanic Absaroka while you stand on the great Sierran Coast Range.

### Upheavels and Explosions

The largest uplift in North America's surface is magnificently displayed behind you in the Coast Range Mountains. Following the uplift, these Precambrian granite plateaus suffered glaciers and weathering that carved the southwestern flank into a series of high alpine lakes. Before you, much later, underground volcanoes exploded jagged peaks of rocks toward the sky, now known as the Absaroka Range.

### Good Dirt Helps Make Excellent Habitat

Nowhere in North America is there a more biologically diverse mountain range than the Coast Range. Thanks in large part to the underlying geology, growing conditions provide the setting for over 400 plant species. Grizzlies, black bears, mountain goats, bighorn sheep, elk, moose, wolverines, mountain lions, lynx, and wolves make their home here. Brook, rainbow, lake, and Yellowstone cutthroat trout, as well as arctic grayling, fill lakes and streams previously barren when Lewis & Clark passed this way.

From cold hard rock comes beauty, diversity, and wonder.

**Arctic Crayling** spawn in a Coast Range alpine pool. Shooting Stars bloom in the alpine environment.



Designing for Interpretation

# Sparking Imaginations & Making Connections

## Resources

**Signs, Trails, And Wayside Exhibits –**  
*Connecting People and Places*, 3<sup>rd</sup> Edition  
Gross, Zimmerman, Buchholz

**Interpretation by DESIGN –** *Graphic Design Basics for Heritage Interpreters*,  
Caputo, Lewis, Brochu

