Cottonwood Canyon State Park

Interpretive Prescription

Nature
HISTORY
Discovery

The mission of the Oregon Parks and Recreation Department is to provide and protect outstanding natural, scenic, cultural, historic and recreational sites for the enjoyment and education of present and future generations.

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Title: Cottonwood Canyon State Park Interpretive Prescription, 2013

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Cover photos: Paul Patton, Eastern Oregon Regional Interpretive Coordinator looks over the canyon, Common Goldeneye in flight at Hay Creek Canyon, overview from Goose Point. All photographs in the Interpretive Prescription are by Jamie Little, OPRD.

Cottonwood Canyon State Park
Interpretive Prescription

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Introduction

This Interpretive Prescription follows and builds on the concepts in the Cottonwood Canyon Comprehensive Plan, Volume 1 (2011). This document is a portion of Volume 2, and provides more detailed planning for managing and implementing the interpretive program.

Cottonwood Canyon State Park offers new opportunities for interpretation and environmental education. The Interpretive Prescription provides guidance for developing interpretive presentations including Junior Ranger programs for youth, interpretive programs on park themes for a variety of audiences, and environmental education programs for schools and other organized groups. Interpretive media concepts are developed to include information on theme choices, selection of media type to use, location of media, and substrate information. Interpretive infrastructure planning includes specifics on locations and design concepts. An action plan provides a sequence for development with cost estimates.

As the Interpretive Prescription is implemented, OPRD staff that can assist in the process include the Eastern Oregon Regional Interpretive Coordinator and the State-wide Interpretive Coordinator in Salem.

Park Overview

The park is located 25 miles south of the Columbia River on Highway 206, in Sherman and Gilliam Counties. It is the former site of the Murtha Ranch. Includes:

- 8,114 acres of deeded lands (309 acres bottomland, 7700 acres rangeland)
- About 16 miles of John Day River frontage

The ranch abuts OPRD's J.S. Burres SRS river access (also known as Cottonwood access).
The closest John Day River access to the south is 40 miles away, where Highway 218 crosses the river at OPRD's Clarno access. To the north the next river access from Highway 206 is about 25 miles away at Rock Creek, where the Oregon Trail crossed the river.

The John Day River Canyon, which is the central spine of the park, has outstanding rugged Columbia Plateau scenery. The twisting, high-cliffed river canyon affords many dramatic views and helps protect the remote feeling of the canyon below. Boating down the river offers views into the twists and branches of the canyon. Climbing to the top of the rolling landscape allows views to distant snow-capped mountains and the expanse of the Columbia Plateau. These views can only be achieved by boating, biking, hiking or horseback riding. Cottonwood Canyon State Park is included in several state and federal land designations that can help protect the scenic setting as well as guide management.

The original barn used as part of the Murtha Ranch.

Cottonwood Canyon State Park is intended to be an attraction for both Gilliam and Sherman Counties. Tourism marketing associated with the towns of Condon and Wasco can feature the park, and promotion of the new park could make a strong connection in the ongoing discussion about heritage branding of the Lower John Day Basin and other important attractions and recreational sites. The development of the park will expand the interpretation offered in the region and county by OPRD and other providers on the John Day River system.

The major geographic feature in the park is the John Day River, cradled in the John Day Canyon. Along with the river, the bottomlands and riparian edge form the most notable landscape features of the canyon. Four major side-canyons empty into the John Day within the park including Hay Creek Canyon, Rattlesnake Canyon, Esau Canyon, and the park's namesake, Cottonwood Canyon. The uplands area that forms the rim of the canyons has evidence of ancient habitation in the slopes above the river and along it. At the ranch site, ruins of homesteads and other early settlement structures are scattered around, contributing to the weathered character of the place.

Today, traces of homesteading and ranching are evident at the Murtha Homestead, which retains its barn and some fencing. Foundations from former homesteading and a schoolhouse are evident. Esau, the first location settled for ranching in the park, still has agricultural fields, corrals and some advertising painted on the canyon wall. Throughout the bottomlands, fences and gates denote former grazing areas. Jeep roads on both sides of the canyon and up the side-canyons were the means by which former ranch occupants accessed this remote terrain.

Highway 206 is the approach road to the park, crossing the John Day River at Cottonwood Canyon Bridge. County roads off Highway 206 provide access to more remote areas such as Starvation Lane and Hay Creek Canyon Road. Starvation Lane is a gravel county road on the north side of the John Day. Off Highway 206, the road follows along the north rim of the canyon for about eight miles before plunging down several hundred feet to the river below via a sharply curving route. Ranch owners opened the route to access the river, but the route is not heavily used. Another county road, Devils Butte Road, leaves Highway 206 about eight miles southeast of the river and travels about seven miles to an intersection with the road along Hay Creek. This is a two lane, all-weather road, with some steep drops without guardrails. The road travels about 11 miles beyond Hay Creek, intersecting with a paved road at Rock Creek before traveling another several miles to Rock Creek and McDonald Crossing. The road along Hay Creek is county maintained about halfway to the river, and then becomes a one lane, gravel and dirt road along a deeply gullied section of the creek. A steep, one-lane dirt road leaving the Esau bottomland goes up through BLM lands to a gate a few hundred feet from Devils Butte Road (the last few hundred feet cross private property). A jeep road provides access from JS Burres to the Esau Bottomlands, and another runs from the Murtha Homestead past the Esau Bottomlands on the north side of the river before terminating at a landslide one-mile beyond. Many of the visitors currently paddle into the park from the Clarno access, 70 miles upriver from JS Burres. Besides rafting, current major recreation is hiking, fishing, horse riding, hunting and wildlife viewing.

Mourning cloak butterfly in Cottonwood Canyon.

Viewing the Canyon from the Goose Point area.

Purpose of Interpretation

The main purpose of interpretation is to make emotional and intellectual connections from the park resources to each visitor to enrich the visitor experience and to help inspire lifelong stewardship of the natural, cultural, and historic places found in Oregon State Parks. Interpretation is communication that goes beyond information. It reveals what things mean and why they matter. Good interpretation connects people to a place. It can lead to a sense of ownership and appreciation of natural and historic resources including the lifeways and culture of a region. Beyond ownership, visitors can become stewards of park resources. That can translate into lower maintenance costs, increased revenue due to longer and more frequent stays, and a stronger belief that places like Cottonwood Canyon are meaningful to Oregonians and our visitors.

The John Day River in Cottonwood Canyon.

Park Natural, Historic, Cultural and Recreational Features for Interpretation

Natural

Geologic features of interest include the longest basalt flows on the planet that connect this site with other state parks, basalt pinnacles, rock layers visible from two major lava flows, wind-blown loess deposits, and the carving of the canyon by the John Day River.

One of the largest bighorn sheep herds in Oregon.

Other large mammals include elk, mule deer, bobcat, badger, and cougar

Golden eagles as well as various hawks and falcons have been recorded in the canyon.

The spring and fall migration of neo-tropical migratory birds is significant in riparian areas.

Reptiles include the western rattlesnake, various non-venomous snakes, as well as at least six species of lizards.

Amphibians recorded include the Pacific chorus frog, western toad and northern leopard frog.

Spring and early summer are the best times to view native wildflowers. Many can be observed at the base of the cliffs. Sagebrush blooms in October.

A variety of lichens can be observed on the slopes, cliffs, and upland areas.

There are a variety of invasive plants that need control measures to help in the restoration of native plant communities.

Desert crusts are hard soils that act as an armor on the ground limiting the establishment of weeds with native plants adapted to this micro-habitat.

The John Day River is the longest dam-free, free flowing stretch of river in the Northwest, supporting spring and fall Chinook runs and summer steelhead.

Relatively dark skies offer opportunities for astronomy programs and night sky views of the Milky Way Galaxy and other celestial objects that cannot be observed from urban areas.

Historic and Cultural Opportunities

Native Americans lived on this land for countless generations.

Euro-Americans first settled in the area around 1850.

Ranching operations and methods in the area have changed and adapted to new methods and products

Barn from the Murtha Ranch at Cottonwood Canyon.

Recreational Opportunities

Raft, kayak, or canoe trips.

Hiking/backpacking trails of varying lengths.

Birding/ wildlife watching.

Starwatching in a significant dark-sky setting.

The remote setting provides opportunities for solitude.

The combination of scenic vistas and wildlife provide opportunities for photography, painting, and other visual art forms.

Hunting

Fishing including flyfishing and fishing from boats.

Brands from the Ranch

Brands used on the Ranch have potential for use in interpretive displays and other communication opportunities. Plans for the opening day ceremonies include creating a ‘brand’ for the park that can be used in various media. There will be a ‘branding ceremony’ at the park opening that marks one of the wood beams or posts. See page 74 for opening day plans.

Geology of Cottonwood Canyon

Cliff face near the junction of Hay Creek and the John Day River.

Summary:

Cottonwood State Park provides an entry point to the geologic history of the John Day Basin—a history that documents climate change, catastrophic volcanic eruptions, and major crustal uplift.

The specific geology of the 8000 acres of the park includes major flows of Columbia Rive basalts, Pleistocene loess deposits, and mapped faults which may be part of the active Maupin-Condon fault zone.

Recommended interpretive opportunities for the geological features of Cottonwood Park include:

1) Utilizing it as a gateway to the geology (and ecosystems) of the John Day Basin, and hence a starting point to explore Oregon's ancient landscapes, ecosystems, climates.
2) Featuring the park's excellent exposures of Columbia River basalts, and showcasing other parks in the Oregon State Parks system, from Silver Falls State Park and Saddle Mountain, to Hat Rock, Catherine Creek, Minam State Recreation Area, the Historic Columbia River Highway State Trail, Mitchel Point, and Viento State Park. Many other State Parks provide exceptional exposures of this important, world-class geologic formation, and this connection could provide a recurrent theme encouraging visits to them.

Sources of Information for Interpretation and Environmental Education

G Drive: Interpretive Forms folder for all manuals and other resources.

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Overview of Visitor Demographics and Market for Interpretation

Visitor Demographics

Visitors come to this region to get away. Many enjoy not running into people, not having cell phone service, and not feeling rushed by pressing crowds. They come because they enjoy the solitude and the beauty. Some come for the wildlife, some come for the wildflowers, some come to see fossils, and some are passing though on their grand tour of Oregon. But many come to the region simply to escape from the stress of life in the cities and experience the wilderness feel of the John Day area. Many also come for the fishing and hunting in the area. Visitors stay for different lengths of time, depending on why they are there.

There are a significant number of drive-by drop-ins at many of the museums and roadside sites, although places like the John Day Fossil Beds do attract some intentional visitors. Additionally, outfitters and organizations including the Hancock Field Station book groups in advance. Seasons bring different crowds. Some of the museums interviewed mentioned heavy family traffic in the summer, followed by retiree traffic in September. The Sherman County Historical Museum expressed that their crowds tended to be older and were attracted by the history museum. The US Fish and Wildlife Service Mid-Columbia River National Wildlife Refuge Complex described different specific groups of people coming to the Cold Springs National Wildlife Refuge different times of the year: Birders come to see the fall and spring migrations and hunters come use the refuges in early winter. Summer visitation is low because there is no hunting and only local birds are seen on the refuge. In the winter, there is not much snow on the refuges, and if the water freezes over, there are no birds to attract birders. Oregonians are not the only visitors to this region. Quite a few come from Washington, as well. Several of the more known visitor spots—the Columbia Gorge Discovery Center and the John Day Fossil Beds National Monument—mentioned a significant number of international visitors from many different countries. Travelers from other parts of the US are stopping through on their trek to the Oregon Coast. Anglers that use the river are often either locals or commercial business that have a special regulations permit (issued by the BLM to control availability through the River Management Plan). Commercial river trips are either day or overnight trips (they stay on BLM land) where all equipment, boats, guide experience, instructions on how and where to fish, assistance catching and releasing fish are provided by an experienced guide. In addition, the guides often interpret the river. Food and equipment provided are high quality. Participants come from Seattle, Portland, and all of the Willamette Valley and often stay in Condon. All river trips in the area are fishing-oriented people are there to catch fish, specifically small-mouth bass and steelhead. Boaters that use the river are often there for solitude. Canoers will float downriver, camp, and then canoe back up stream. Often, people who book raft trips are looking for a slow, relaxing river for a raft trip—avoiding the rapids of some of the other rivers in Oregon. One of the outfitters mentioned that the river was not a well known river—most people looking for a raft trip request other rivers. That is also part of the reason some wish to paddle the John Day, because it is not as heavily trafficked. Many of the outfitters put in at Clarno and take out at Cottonwood Bridge. Chukar hunters are there to hunt this small game bird. They also have the opportunity to spend the day hiking and viewing amazing country. Hunting season is from around October 15th to January. (ODFW “Upland Game Birds” has the official yearly dates). Local families use the sandy bank revealed near Cottonwood Bridge when the water is low in July and August as a beach and will hang out for the whole day with blankets, radios, etc, to cool off. The river is not as dangerous in the summer, as the water levels drop.

Market for Interpretation in the Region

Interpretive programs in this region include museums with exhibits and interpretive panels, guided hikes, bicycle tours, rafting or fishing trips with various commercial outfitters, outreach opportunities in schools and at community events, and self-guided hikes, and trails. Many groups offer guided hikes. Oregon Paleo-Lands Institute (OPLI) offers bike tours, and will accompany raft excursions as interpreters, as well as lead hikes that focus on artistic renderings of the landscape. The John Day Fossil Beds National Monument gets phone calls from photographers around the world asking if the wildflowers are in bloom yet and will give special hikes into the backcountry specifically for professional photographers. The raft guides tend to talk about the geology and botany of the area with a little wildlife and cultural history sprinkled in here and there. Some outfitters (like Mah-Hah outfitters) are fishing-specific and focus on fishing in the John Day.

Many of the interpretive opportunities offered by the various surrounding organizations— especially those like rafting/fishing/hunting outfitters—require advance planning. Aside from the trails and interpretive centers, there are not many recreational interpretive opportunities offered for last-minute groups. A family visiting the area will not necessarily have access to raft or bike tours if they haven't planned ahead for them. School attendance at some of the area museums has dropped in recent years. However, the Sherman County Historical Museum mentioned that they will get private school groups stopping by on their way to the Hancock Field Center. In addition, the John Day Fossil Beds National Monument said they draw field trips from schools within a 2 hour radius. The McNary Dam draws from schools in Hermiston and Umatilla, which are quite close to the dam. A few of the groups do programs in the schools—although those tend to be more focused on local history and not as much on natural history. The Columbia Gorge Discovery Center attracts student volunteers from local schools—sometimes to do service-learning style volunteer programs. Outreach in the area seems to be more event-based. The Sherman County Museum, the Museum at Warm Springs, and the McNary Dam all send people to community events from time to time. In addition to their other hikes and tours, the Oregon Paleo-Lands Institute takes groups to visit the High School in Wheeler County. History and Culture topics interpreted in the area cover a broad range of topics: Oregon Trail, Native American history and culture, and regional settlement. Many museums offer historical buildings in addition to the traditional museum exhibits. Most of the interpretive opportunities within 50 miles of Cottonwood Canyon tend to focus on the region's pioneer and agricultural history and Native American culture. Biology is covered by many different groups, but is not the main focus of their interpretation. Raft trips, fishing trips, and interpretive hikes lend themselves to discuss the wildlife and botany of the region, in addition to the other topics covered. The John Day Fossil Beds National Monument has a publication for identifying wildflowers in the region. Birders are attracted to the region seasonally to see what birds are migrating through. USFWS has an event in conjunction with the non-profit group Ducks Unlimited called "Greenling Day" where kids get to hold and band wild ducks. Hunting and fishing outfitters discuss wildlife and the environment as it relates to their sport. Another common theme heard was the importance of invasive or non-native species removal in this area. Earth science is a main focus of interpretation within the region, due to the fossil beds. The geology of the region attracts specific interest groups: rock hounds, paleontologists, and visitors interested in fossils.

Potential Partners

Partner organizations can greatly expand and enhance the ability of OPRD to serve our visitors with engaging experiences. Some examples of how partners could participate in the interpretive program at the park include:

- Leading guided walks.
- Providing seasonal rotating displays.
- Leading guided raft trips through the park.
- Attending interpretive trainings offered by OPRD.
- Conducting research in the park and then sharing findings with the public.
- Collaborating with OPRD staff to create a display or brochure on the history of the park.
- Leading educational programs for school groups.

The following groups are potentially interested in participating in the interpretation of Cottonwood Canyon:

Sherman County Historical Museum

Mah-Hah Outfitters

Oregon Paleo-Lands Institute

Museum at Warm Springs

Depot Museum Complex

Pine Mountain Observatory

Lower John Day Conservation Workgroup

Eastern Oregon University

Oregon Department of Geology & Mineral Industries

Physical Interpretive Limitations

Sensitive Interpretive Areas

The Oregon Parks and Recreation Department will work with the Confederated Tribes of Warm Springs as well as the State Archeologist in the interpretation of the Native American history of the park. Rare species of plants or animals documented in the park will be interpreted to help the public understand their significance while avoiding disturbance that would be detrimental to sensitive species.

ADA Issues

Interpretive opportunities at Cottonwood are spread throughout the park but the topography of the park makes accessibility a concern for those with mobility impairments. The interpretive trail will be designed to be universally accessible when possible, although it will not be possible to maintain an acceptable grade in all areas. When interpretive features are not easily accessible alternate methods of communicating those interpretive messages should be provided.

Care should be taken to focus on providing interpretive messages to those with disabilities other than mobility impairments. Cottonwood provides a rich environment for interpretation and there are many opportunities to use all the senses to tell the interpretive stories. A combination of techniques supplementing the traditional visually available materials with audio and tactile interpretation methods will provide access to a wider range of visitors who have widely varying abilities.

As interpretive materials are developed it would be desirable to have input from people with not only mobility impairments but visual and audio disabilities as well. Input on interpretive projects should also be solicited from the OPRD Universal Access Advisory Committee.

Site Specific Issues

Some visitors will likely not be able to travel all trails. There will be benefits to interpretation that help all visitors to experience the more remote portions of the park. This may include communication methods such as smartphone applications, video clips on the web, or other media.

The John Day River flowing through Cottonwood Canyon.

Cottonwood Canyon State Park Interpretive Themes

The **Primary Theme** is the key concept reflecting the significance of the park that every visitor should understand:

Expansive geologic events, the power of the John Day River, and the people of the Basin have shaped Cottonwood Canyon State Park's rugged yet fragile landscape, inspiring us to explore and become stewards of this treasured resource.

There are five **themes** for Cottonwood Canyon.

An interpretive theme is a succinct, central message about a topic of interest that a communicator wants to get across to an audience. (National Association for Interpretation) The themes are the ideas or concepts that together support the primary theme. At a minimum, all visitors should understand at least one of the themes based on their specific area of interest.

Theme One:

1. THESE CANYONS DEMONSTRATE HOW POWERFUL GEOLOGIC PROCESSES CAN

SHAPE A LANDSCAPE OVER VAST PERIODS OF TIME.

Sub-themes are the concepts that support a theme.

Subtheme 1.1

The sixteen million year story of geologic history can be "read" in the rock layers, like the chapters in a book.

Supporting Stories communicate a sub-theme or theme.

Examples of Supporting Stories

Rock layers are read from bottom to top, with the bottom consisting of the oldest rocks, and the top consisting of the youngest rocks. Interesting geologic features at Cottonwood Canyon State Park include basalt pinnacles, or towers, and columnar joints that form as the lava cools, shrinks, and cracks.

Subtheme 1.2

The rock layers visible on the steep canyon walls formed in two major lava flows.

Examples of Supporting Stories

The Grand Ronde Basalts came from a lava flow in the eastern part of the Columbia Plateau 16 to 15.6 million years ago and formed as the lava cooled. The Wanapum basalts came from lava flows 15.6 to 15.3 million years ago and have larger crystals than the Grand Ronde Basalts, weathering a red-brown color due to their high iron content. There is a thin sedimentary layer between the two basalt layers, indicating a brief period of geologic rest.

Subtheme 1.3

The John Day River emerged nine million years ago and continues to carve the canyons at Cottonwood Canyon State Park.

Examples of Supporting Stories

Once, the John Day River meandered over a wide, gentle plain. Uplift in the Blue Mountains near the headwaters of the John Day River increased the force of the water and its capacity to erode, causing the river to carve the winding canyon.

Subtheme 1.4

As part of some of the longest basalt flows on the planet, Cottonwood Canyon State Park shares geologic formations with other state parks in Oregon.

Examples of Supporting Stories

These same basalt flows are visible at Hat Rock, Minam River Canyon, Deschutes River Mouth, Tryon Creek, Silver Falls, LaTourell Falls, Saddle Mountain, and Cape Lookout State Park.

2. THE LAND HAS ALWAYS PROVIDED FOR VARIOUS CULTURES THAT HAVE LIVED HERE.

Subtheme 2.1

The land at Cottonwood Canyon State Park has sustained Native Americans for countless generations.

Examples of Supporting Stories

In the high desert, the John Day River provides life-giving water and food to people dependent on the land. The John Day River Basin continues to provide resources to Native Americans. One example is fishing in the John Day River. These illustrations of history stand as reminders of Oregonian heritage and should be valued as a testimony to the spirit of stewardship and adventure we share.

Subtheme 2.2

Since 1850, the bottomlands along the John Day River have sustained families of European settlers.

Examples of Supporting Stories

Evidence of Euro-americans can be seen in the landscape at Cottonwood Canyon: a rock wall here, remnants from a shelter there. These traces of history stand as reminders of Oregonian heritage and should be preserved as a testimony to the spirit of stewardship and adventure we share.

Subtheme 2.3

Ranching operations here have changed over time as they harnessed the landscape to graze livestock and grow crops, with the peak of activity in the late 19th and early 20th centuries.

Examples of Supporting Stories

Wheat provides food for a growing population; alfalfa provides food for cattle. At different times sheep and cattle have been grazed in the area. Oregonians continue to draw sustenance from the land along the John Day River.

Subtheme 2.4

Cottonwood Canyon State Park is bordered by an agricultural landscape that represents an evolution in land stewardship.

Examples of Supporting Stories

Wheat grown in this area is shipped around the world. Some agricultural areas share space with wind farms to produce energy.

3. THE SEEMINGLY STARK LANDSCAPE HAS A SURPRISINGLY DIVERSE FLORA AND FAUNA WHEN OBSERVED CAREFULLY, AND WILL BENEFIT FROM OUR STEWARDSHIP.

Subtheme 3.1

Riparian zones along the John Day River are a high priority for restoration.

Examples of Supporting Stories

A variety of native plants and animals depend upon this habitat for survival. The riparian areas have been degraded by grazing, and are infested with noxious weeds and non-native plant species. Partners such as the Western Rivers Conservancy and adjacent property owners are helping Oregon Parks and Recreation Department restore the natural habitat in Cottonwood Canyon State Park by removing the weeds and non-native plants, and replacing them with native plant species. Community members, school groups, and park visitors and volunteers will have the opportunity to help restore the riparian zones.

Subtheme 3.2

The cliffs provide shelter for one of the largest herds of bighorn sheep in Oregon, which are a restoration success story.

Examples of Supporting Stories

The cliffs provide habitat for bighorn sheep. Visitors can use binoculars to view the bighorn sheep. The bighorns were reintroduced in 1989 after being eliminated in the region.

Subtheme 3.3

The cliffs provide habitat for various bird species, including swallows, falcons, hawks, and eagles, while waterfowl can be seen along the John Day River and songbirds can be found in the trees and shrubs along the river.

Examples of Supporting Stories

Binoculars are recommended to enjoy views of birds in the park. Falcons, hawks, and eagles often ride the thermals (air currents) that form near the cliffs from the strong winds that blow through the canyons. Waterfowl are most common on the river in spring and fall migration. Songbirds in trees and shrubs along the river are also most common during spring and fall migration. Those interested in helping with stewardship of birds in the park can volunteer to assist with bird counts.

Subtheme 3.4

Micro-habitats provide conditions for a variety of plant species that are worthy of our protection and stewardship.

Examples of Supporting Stories

Desert crusts are hard soils that act as a sort of armor on the ground limiting the establishment of weeds. Slopes have very sparse, thin soils that are inhospitable for most plants; the plants that do grow on the slopes have niches in the different soils and substrates. Canyon slopes, benches, ridgetops, bottomlands, and flats above the rimrock provide a variety of growing conditions for plants. Each of these variations in growing conditions is an ecological ***niche*** that has its own assemblage of species that have become adapted to survive there. As you look across the landscape of Cottonwood Canyon, close inspection of the patterns of plant species composition and vegetation density reveal hidden underlying patterns in the environment. These patterns are governed by environmental characteristics such as soil type, sun exposure, topographic position, slope curvature, slope steepness, exposure to wind, grazing intensity, surface water sources, weed abundance, etc. Due to its openness, topographic variability, and visitors' ability to see a large variety of microsites at the same time without the obscuring influence of trees, Cottonwood Canyon State Park provides a uniquely obvious exposition of the influence of microsite and microclimate on vegetation composition and density.Vibrant wildflowers bloom in the spring and summer, creating colorful arrays in the canyon.

Subtheme 3.5

The rattlesnakes in the canyon have adapted to survive.

Examples of Supporting Stories

The western rattlesnake is fairly common in the canyons here. It has a series of adaptations that help it to be successful in this environment. This is the only venomous snake native to Oregon. As a predator, snakes help keep a healthy balance in other animal populations.

4. COTTONWOOD CANYON STATE PARK OFFERS A VARIETY OF ADVENTUROUS

RECREATIONAL EXPERIENCES.

Subtheme 4.1

Hikers can explore the more remote areas of Cottonwood Canyon State Park.

Examples of Supporting Stories

From the top of the Gooseneck Overlook, the park offers breathtaking views of the John Day River canyon. Trails along the river provide up-close views of the basalt cliffs. The park's different levels of development allow hikers to escape from the bustle of life and experience the rugged solitude of the canyon and uplands.

Subtheme 4.2

Rafting gives a unique perspective of the John Day River canyon as the river winds through the basalt formations.

Examples of Supporting Stories

Rafting is a historically popular activity. In order to protect the river, land managers are carefully controlling access to the river.

Rafters will want to watch for wildlife, like bighorn sheep, on the slopes and cliffs of the canyon. Visitors can take a guided raft trip to gain a deeper understanding of the history of the canyon.

Subtheme 4.3

Visitors to Cottonwood Canyon State Park can explore extensive trails for backcountry camping.

Examples of Supporting Stories

Explore fifty miles of trails in the park, from level trails along the river to steep ridges with sheer drop-offs near the overlooks. Two or three day backpacking trips in the park are possible.

Subtheme 4.4

Hunting and fishing is permitted in designated areas within the park, and has a multi-generational history.

Examples of Supporting Stories

Various cultures have always hunted and fished this area. There are many opportunities for hunting and fishing in the park. Please check at the Experience Center or Oregon Parks and Recreation Department web site for guidelines.

Subtheme 4.5

Star-watchers can enjoy the beauty of the night sky in this remote location.

Examples of Supporting Stories

The park has a good ranking (4) using the Bortle Dark Sky rating system. This ranks among the best compared to other Oregon State Parks for astronomy. On clear nights, great views of the Milky Way Galaxy and other night sky objects can be seen. The park is designed to help maintain dark sky views with specially designed outdoor lights.

Subtheme 4.6

Horseback riders can explore the park and camp in the area. Examples of Supporting Stories

Horseback riders can make use of horse camps, as well as trails in the park.

5. BY "LEAVING NO TRACE", YOU PROTECT AND PRESERVE WHAT WE VALUE IN THIS SPECIAL

PLACE.

Subtheme 5.1

Cultural resources are pieces of our shared heritage.

Examples of Supporting Stories

While cultural artifacts are interesting to look at, it is important that they remain where they were found. When the artifacts are removed or disturbed, important information about the area's cultural history is lost. It is important to our heritage by leaving artifacts where they were found. Visitors can contact park staff if you are interested in volunteering to help document history in the park.

Subtheme 5.2

Practice "leave no trace" techniques when hiking and camping at Cottonwood Canyon State Park to help

preserve the natural, rugged experience for others.

Examples of Supporting Stories

Packing your trash out of the park; disposing of waste properly. Fire spreads quickly in the canyon; use fire pans to help prevent uncontrolled burns and fire scars in the back country. Travel and camp on durable surfaces; stay on the trails. Respect wildlife; do not feed the animals, intentionally and unintentionally. Be considerate to other visitors.

Subtheme 5.3

Help reduce the spread of noxious weeds or non-native plants.

Examples of Supporting Stories

Plants use different strategies for dispersing their seeds. The seeds of noxious weeds and non-native plants will sometimes hitch rides on clothing or animal fur. Check your clothing and your pet's fur for these before leaving the park. Dispose of any seeds found properly. Contact park staff if you would like to help with native plant projects.

Safety Messages

The following are not interpretive themes, but represent information that needs to be communicated to park visitors.

Overall Communication Message

VISITORS ARE ADVISED TO PLAN AHEAD FOR THEIR ADVENTURES IN THIS RUGGED LANDSCAPE.

Message 1

Visitors need to know their limits.

Supporting Information

Due to the remote and rugged nature of Cottonwood Canyon State Park, it is important to be well versed in your activity. Participating in a guided recreational experience, such as a guided hike or raft trip is helpful for those trying new experiences.

Message 2

Due to the remote and rugged nature of Cottonwood Canyon State Park, visitors are encouraged to create a trip plan before heading out for their recreational adventures.

Supporting Information

Include the elements of a trip plan: destination, estimated time of return, emergency contact information, next-of-kin contact information, any pertinent health information, and number in party. Leave trip plan with a family member, or with park staff.

Message 3

Due to the remote and rugged nature of Cottonwood Canyon State Park, it is important that visitors pack for their recreational activities, including adequate amounts of water.

Supporting Information

Because this park will be less developed than the average State Park, it will have fewer sites with potable water. It is important for visitors to be aware of this, and to plan accordingly.

Message 4

The presence of rattlesnakes and ticks requires caution when hiking at Cottonwood Canyon.

Supporting Information

Be alert for rattlesnakes! Rattlesnakes will shake their tail when they feel threatened, producing a vibrating sound. Rattlesnakes tend to like the rocky areas up the canyons. If bitten, stay calm and get help as soon as possible. Ticks are common in the spring. Wear long sleeves and pants to discourage tick bites.

Message 5

Fires can be catastrophic in this area. Be aware of current park rules and bans that may be in effect.

Supporting Information

At certain times, campfires may be banned in the park due to fire danger.

Basalt cliffs along the John Day River.

Interpretive Level of Service

Park ratings for the Interpretive Level of Service were published in the Oregon Parks and RecreationDepartment's "Regional Interpretive Framework" in 2005. There are five levels, corresponding to the park's interpretive significance, size, visitation levels, and other factors. The definitions for the five levels are listed here.

Level Five: Can include a visitor facility of some kind. May be only a small visitor contact building or a full service interpretive center. Can also include outside interpretive structures. Serves as a base for outreach education programming. Offers staffing and interpretive access year round and seven days a week. Have multiple interpretive sites in the park and supporting guided and self-guided and self-guided trails. Offers staff-run programs and tours. Has staff who are dedicated to interpretive duties on a year round basis and additionally dedicated interpretive staff for the summer season.

Level Four: A high season only version of Level Five.May include a dedicated education center, large or small, but will only be seasonally open. May include outside interpretive structures that can be self-guiding for both high and off-season use. Can have dedicated interpretive staff on a seasonal basis.

Level Three: Generally would not include dedicated interpretive building with interior access. May include outside interpretive structures. Offers only seasonal programs and tours. Can be provided by dedicated staff, other staff, area support, volunteers or may be self-guiding.

Level Two: Generally providing self-guided opportunities such as sign structures, walks and tours. Provides occasionalseasonal staffed programs. Staff would come from a "higher" level park, or the area office. Programming might be event or request based.

Level One: Provides an information kiosk and some freestanding interpretive signs. No programming or interpretive staff presence.

The park was assessed using the following criteria:

1. Expected level of visitation.
2. Inherent significance of the resource, whether it is cultural, natural or scenic.
3. Distance from major population centers within the area.
4. Potential for significant impact on the array of opportunities available in that area.
5. Potential to support tourism by serving as an orientation hub or portal facility interpretive and recreational opportunities in an area. This will be related, in part, to proximity to major corridors and, in part, to geographical relationship to surrounding attractions and opportunities.
6. Significance of the resources in terms of attraction power, whether they are cultural, natural or scenic. Landscape significance is one of the factors in assessing the significance of natural resources.

Cottonwood Canyon State Park is recommended to have an Interpretive Service Level of Four.

Interpretive Staffing

Recommendation

A nine month seasonal interpretive ranger is recommended, with a season starting in March and ending in November each year. Support for this ranger would include both the Regional Interpretive Coordinator based at Smith Rock State Park, and the state-wide Interpretive Coordinator in Salem. Recruitment and coordination of volunteers and partners that can help present interpretive programs will be an important part of the interpretive ranger's role at this park.

Supporting Park Values

These goals and objectives support the same park values as the park management goals listed in the comprehensive plan. The interpretive goals support and help achieve the park management goals. The successful achievement of the interpretive goals and objectives will occur through implementation of the media that have been prescribed to communicate the interpretive themes. Evaluation of the success in achieving objectives can be direct in some objectives linked to the creation of a physical structure or holding an event. Objectives linked to visitor behavior can be more challenging to measure and may require pre and post park visitor surveys. There are three types of interpretive objectives, defined as follows: Outputs measure projects led by OPRD. Outcomes review changes in park visitor behavior. Impacts consider improvements to the organization or resource.

Interpretive strategies include media selections supporting various goals. Media can include personal presentations by rangers as well as brochures, wayside exhibits, audio or video presentations, self-guided trails, and even facility or landscape design. The media selected will utilize appropriate interpretive themes to communicate key messages.

Interpretive Goals and Objectives

1. NATURAL RESOURCES

Goal 1.1 Visitors will support park natural resources protection and restoration efforts.

Outputs

On-site media will be developed including interpretive panels and brochures.

An interpretive trail near the campground will be developed with an accompanying brochure.

Interpretive programs presented by OPRD rangers as well as partners will be developed.

Outcomes

Over 75% of visitors will support management actions for protecting or enhancing habitat.

By 2015, at least twenty volunteers yearly will assist with park natural resource restoration or census projects.

Impacts

Natural resource restoration projects will benefit from volunteer assistance.

Natural resource census projects will benefit from volunteer assistance.

2. NATURAL + RECREATIONAL RESOURCES

OVERLAP

Goal 2.1 Create key opportunities for the canyon to teach us that we are all part of one natural system.

Outputs

On-site media will be developed including interpretive panels and brochures by 2015.

An interpretive trail near the campground will be developed with an accompanying brochure by 2015.

Interpretive programs presented by OPRD rangers as well as partners will be developed by 2014.

Environmental education programs for school groups will be offered in the park by partners with OPRD support by 2015.

Junior Ranger programs for youth ages six to twelve years of age will be offered by OPRD staff or volunteers in sequence with the campground development.

Outcomes

Over 500 participants will attend an interpretive program at the park for 2015.

By 2015, at least three school groups will visit the park yearly for environmental education.

Impacts

School groups will benefit from enhancements to their curriculum that helps achieve Oregon Environmental Literacy Goals.

Goal 2.2 Reveal the ongoing cycle of nature at Cottonwood Canyon by offering opportunities for experiencing its geology, plants, and wildlife.

Outputs

An interpretive trail near the campground will be developed with an accompanying brochure.

Interpretive programs presented by OPRD rangers as well as partners will be developed on various aspects of park natural history.

Build a professional quality photographic library across all seasons of the year of flora, fauna, and scenic views, utilizing these images in a variety of interpretive media to tell the stories of the park effectively.

An innovative collaboration with local schools could include the creation of student videos to tell the stories of the park following environmental education programs.

School groups that visit seasonally or yearly could record data for specific sites within the park to document changes over time. Examples could include a water quality study, native plant study, or bird population study.

Wildlife Observation: Since the park contains a variety of wildlife including one of the largest herds of bighorn sheep in the state and nesting raptors in the canyon, it may be possible to plan for opportunities to allow the public to view wildlife in the area. This might include viewpoints, trails, and guided walks.

Outcomes

Over 75% of visitors will report an understanding of the theme as presented in an interpretive natural history program.

Visitors will gain in awareness of the natural history of the park.

Impacts

Interpretive media quality will benefit from access to a library of images.

Damages to park natural resources from visitors will be minimal or none.

Goal 2.3 Encourage the varied natural beauty of the canyon landscape to be understood and be appreciated.

Outputs

Interpretive programs presented by OPRD rangers as well as partners will be developed that include guided walks.

Workshops with Guest Speakers: Outdoor skills workshops could be coordinated to encourage the public to experience the park. A few examples include birding, fishing, art, geo-caching, and nature photography.

Elders/Kids workshops could be conducted in local communities during shoulder season. Elders/Kidsteaches "youth through youth" to create educational products such as video casts, plays, and postcards to share with community members and town visitors.

Outcomes

Over 75% of visitors attending workshops will report gaining an appreciation for the beauty of the landscape on survey forms.

By 2015, at least two partnerships yearly will assist or lead programs or workshops.

Visitors will support the work of OPRD in maintaining Cottonwood Canyon State Park.

Impacts

Damages to park natural resources from visitors will be minimal or none.

Visitors will report an increase in a sense of stewardship for park resources.

3. RECREATION

Goal 3.1 Provide orientation and safety information to help support a variety of forms of outdoor recreation.

Outputs

On-site media will be developed including orientation panels and a trail brochure.

Safety messages will be communicated through a variety of media.

Outcomes

Over 75% of visitors will support satisfaction with orientation and wayfinding information.

Visitors will have safe outdoor recreation experiences.

Visitors will rarely get lost in the park.

Impacts

OPRD will spend fewer resources on search and rescue.

Goal 3.2 Outdoor recreation activities will be promoted by OPRD staff and partners.

Outputs

On-site media will be developed including orientation panels and trail brochures.

A Geocache and/or Earthcache trail will be created by 2015.

Through concessionaires, offer guided boat or raft trips with nature or history experts on-board.

Interpretive programs presented by OPRD rangers as well as partners will be developed that promote outdoor recreation such as backpacking, birding, flyfishing, cross-country skiing, and canoeing by 2015.

Offer instructions in wilderness ethics and camping at park entrance by 2015.

Concessionaires that offer guided raft trips could attend OPRD interpretive training workshops to help them become Certified Interpretive Guides.

Outcomes

Over 500 visitors will participate in some form of outdoor recreation in the park in 2015.

By 2015, at least three concessionaires will become Certified Interpretive Guides.

Impacts

Visitor surveys will reflect at least 75% satisfied with a high quality outdoor recreation experience in the park.

Litter will rarely or never be found in the park.

4. CULTURAL + RECREATION OVERLAP

Goal 4.1 Help visitors to understand and support the portions of the park set aside for traditional activities.

Outputs

On-site media will be developed including orientation panels and trail brochures by 2015.

Interpretive programs presented by OPRD rangers as well as partners will be developed.

Outcomes

Over 75% of visitors will report understanding the location of areas set aside for traditional activities.

Over 75% of visitors will support the concept of areas set aside for traditional activities.

Impacts

Local citizens will be able to continue traditional hunting and fishing practices.

5. CULTURAL

Goal 5.1 Help visitors to understand the human history of Cottonwood Canyon and inspire protection of historic resources.

Outputs

On-site media will be developed including interpretive panels and brochures.

An interpretive trail near the campground will be developed with an accompanying brochure.

Interpretive programs presented by OPRD rangers as well as partners will be developed on history.

Work with the Confederated Tribes of the Warm Springs to highlight traditional ways of seeing the John

Day River, which could include tribal led guided trips.

Outcomes

Over 75% of visitors will report gaining in an understanding of the human history of Cottonwood Canyon.

Over 75% of visitors will report gaining in a sense of stewardship for the historic resources of Cottonwood Canyon.

Impacts

Historic sites will be preserved for future generations.

Removal of historic artifacts will be a rare event.

6. CULTURAL + NATURAL OVERLAP

Goal 6.1 Help visitors connect to Cottonwood Canyon's stories and traditions.

Outputs

On-site media will be developed including interpretive panels and brochures by 2015.

An interpretive trail near the campground will be developed with an accompanying brochure by 2015.

Interpretive programs presented by OPRD rangers as well as partners will be developed on local stories by 2014.

Invite the Confederated Tribes of Warm Springs and the Confederated Tribes of Umatilla to teach first foods to visitors, explain stories behind pictographs, and teach about the history of the area by 2015.

Ask local artist volunteers to paint a park landscape from a vantage point along a trail and invite visitors to chat with artists to understand why a particular location, style, medium was chosen to represent the landscape by 2015.

Team up with Oral History Project to record stories about the area and make audio available in the Welcome Center by 2015.

Display comments, stories and artwork sent from visitors about the park as experiences of the landscape continue to take form.

Host a yearly campfire storytelling event at the park by 2015.

Outcomes

Over 75% of visitors attending history programs or events will report gaining in understanding of local stories and traditions.

By 2015, at least three partners will assist or lead a yearly program focused on local stories.

Impacts

Local history will be documented with the information enhancing future interpretive efforts.

Partnerships will be developed with tribal representatives as well as local ranchers, hunters, and fishers.

7. COMMUNITY BENEFITS

Goal 7.1 Seek to develop partnerships in offering interpretive programs and experiences.

Outputs

Interpretive programs presented by OPRD rangers as well as partners will be developed.

Restoration and conservation efforts will utilize volunteers partnerships and citizen science.

Partner with other organizations towards a long-term vision to build the Cottonwood Experience Center

that will house classrooms and exhibit spaces. Use a green building approach with the installation of a photovoltaic system to provide electrical power.

Seek out local concessionaires for guided fishing tours, backcountry hiking guides, birding guides, etc.

Outcomes

By 2015, at least twenty volunteers yearly will assist with park interpretive programs or events.

Impacts

Visitors will have greater options for interpretive programs and experiences at the park. Partnerships will strengthen the park staff's ability to reach their goals.

Partnerships will help benefit local economies.

Media Prescription

The media options to share the stories of the park can include both personal presentations by Rangers, volunteers, or local partners, as well as non-personal forms of communication such as the web, smart phone apps, brochures, wayside exhibits, indoor displays, audio or video presentations, self-guided trails, and even facility or landscape design.

Wayfinding Strategy

Visitors will start their park visit either online at the OPRD web site or on site. On site orientation will include highway directional signage, entrance signs, orientation panels with maps of park trails, trail and facility directional signage, and a trail brochure.

Website

The web site will offer an interactive Google map and written directions. Visitors can download a PDF of the trail brochure and general park brochure. A video could give visitors an introduction to the park attractions and suggestions for planning a trip. The website will be configured for mobile devices.

Objectives

After visiting the website, visitors will:

- Want to visit Cottonwood Canyon
- Be aware of the park amenities
- Have access to a simple map of the area with directions to the park
- Have contact information for the park
- Be aware of the next special event at the park
- Be aware of links on the website to additional information
- Be aware of key safety messages
- Be aware of regional attractions

Website Description

The home page should market the Cottonwood Canyon experience with visuals of visitors participating in activities as well as scenic views of the area. A few examples of possible photos include visitors fishing, rafting, birding, participating in an interpretive program, or hiking. Scenic views of the canyon and river corridor as well as flora and fauna will enhance the site as well. Brief captions can identify the activity and provide tips on where to get more information. Links should provide access to additional information:

- Driving directions and map of the area
- Downloadable version of the park brochure
- Downloadable version of the trail map
- An overview of the park story/themes.
- Bird checklist
- Upcoming programs and special events

Highway Signage

- Wasco intersection
- Property line signs (under consideration as of 8-15-12)
- Advanced warning signs for JS Burres at ¾ mile and Cottonwood at ½ mile
- Monument signs for both JS Burres and Cottonwood Canyon

Orientation Displays

A series of panels will welcome and orient visitors to the park. For each display, three panels 24" x 36" in size are recommended, with one featuring a map of the park and trails, one providing a welcome to the park with an overview of the major themes, and one with safety messages. Locations to include: Welcome Center, Hay Creek, JS Burres, and the Hilltop. The set at Hilltop would only include the map and overview panels, with the safety messages panel added in phase two when the future trail opens.

Mounting plan for each location:

- Welcome Center three panels on a railing under a shade structure.
- Hay Creek panels on standard frames with core10 steel
- JS Burres panels on standard frames with core10 steel
- Hilltop panels mounted with frames only to the fence or wall.

Additional panels 20" x 24" in size with park maps and a small inset on safety reminders should be placed at each trailhead. Trailheads are to be identified by an arch replicating the original ranch entrance. A total of six panels are needed.

- At the main trailhead near the new gravel parking lot for turn around and overflow.
- Facing upstream on the north side of the river
- Facing upstream on the south side of the river near the boat launch at JS Burris
- Facing downstream on the south side of the river at JS Burris
- Hay Creek, one each facing upstream and downstream

Safety messages for wayfinding/orientation panels:

Message 1

Visitors need to know their limits.

Supporting Information

Due to the remote and rugged nature of Cottonwood Canyon State Park, it is important to be well versed in your activity. Participating in a guided recreational experience, such as a guided hike or raft trip is helpful for those trying new experiences.

Message 2

Due to the remote and rugged nature of Cottonwood Canyon State Park, visitors are encouraged to create a trip plan before heading out for their recreational adventures.

Supporting Information

Include the elements of a trip plan: destination, estimated time of return, emergency contact information, next-of-kin contact information, any pertinent health information, and number in party. Leave trip plan with a family member, or with park staff.

Message 3

Due to the remote and rugged nature of Cottonwood Canyon State Park, it is important that visitors pack for their recreational activities, including adequate amounts of water.

Supporting Information

Because this park will be less developed than the average State Park, it will have fewer sites with potable water. It is important for visitors to be aware of this, and to plan accordingly.

Message 4

The presence of rattlesnakes and ticks requires caution when hiking at Cottonwood Canyon.

Supporting Information

Be alert for rattlesnakes! Rattlesnakes will shake their tail when they feel threatened, producing a vibrating sound. Rattlesnakes tend to like the rocky areas up the canyons. If bitten, stay calm and get help as soon as possible. Ticks are common in the spring. Wear long sleeves and pants to discourage tick bites.

Message 5

Fires can be catastrophic in this area. Be aware of current park rules and bans that may be in effect.

Supporting Information

At certain times, campfires may be banned in the park due to fire danger.

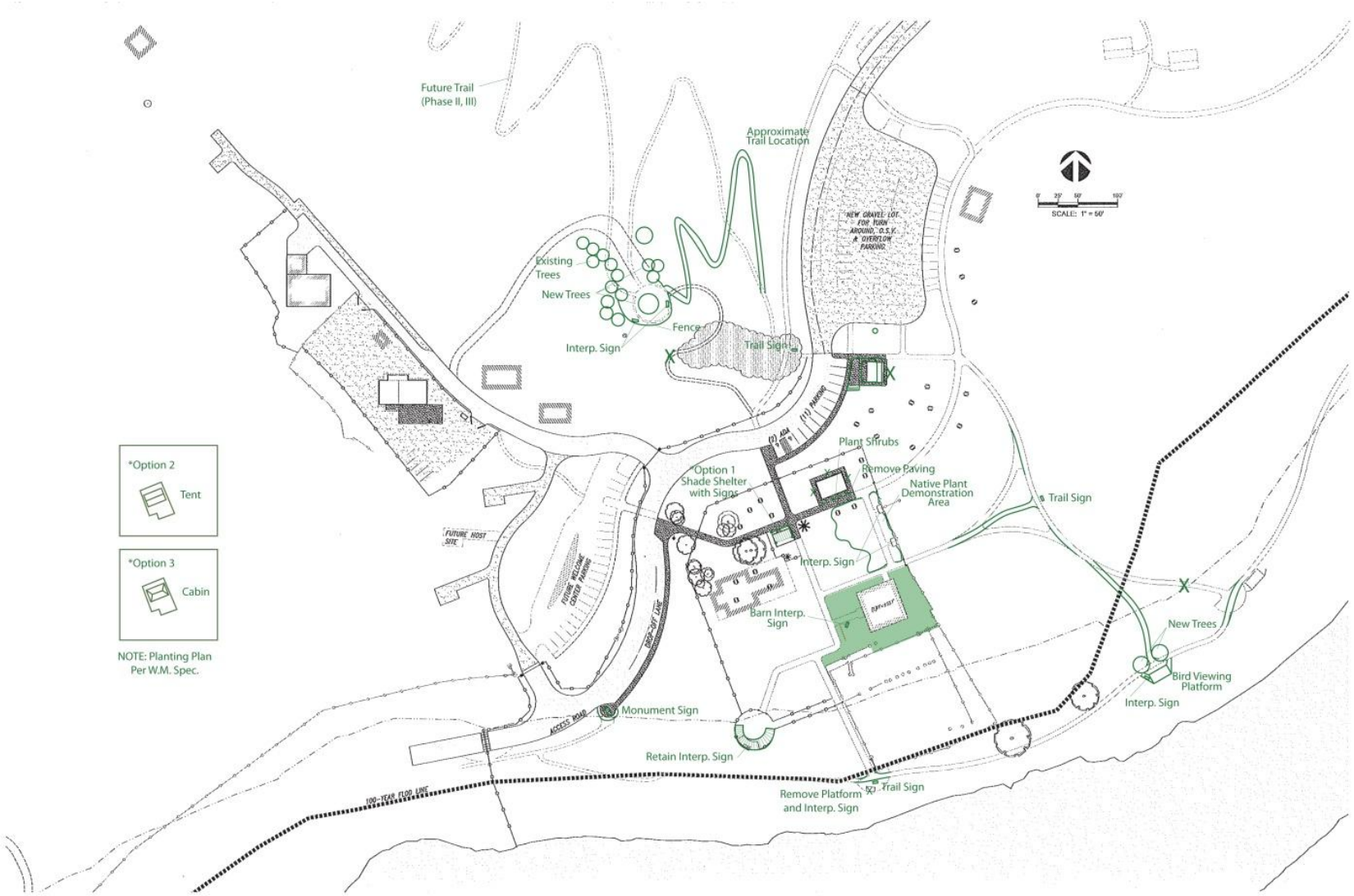
Brochures/Publications

- General park brochure to provide an overview of the attractions, facilities, and services provided.
- Trail brochure to be used to navigate the park and introduce interpretive themes. (Create a folding Trail brochure that is modeled after the Silver Falls State Park trail map. One side is a full size map of the trails, one side highlights park attractions to visit with color photos. One section includes safety messages.)
- Bird checklist once data is available.
- Native American uses of the land, this might include uses of plants and fishing techniques, for example. This needs to be developed in cooperation with the Confederated Tribes of Warm Springs.
- Self-guided interpretive trail. This guide will interpret a series of stops along the interpretive trail near the Welome Center in phase one.

Earthcache Option

This is another trend which is increasing in popularity. OPRD sanctioned scavenger hunts would attract families who are looking for adventure. Many people seek out unique Earthcaches or Geocaches when planning family (or personal) trips, and this would make Cottonwood Canyon a destination for these people. This is also an interesting opportunity for interpretation through discovery, as visitors learn a piece of the story as they uncover more objects/ locations. While a traditional geocache site typically contains a container and a log book or logsheet, and sometimes items for trade, an Earthcache site is designed to help people learn about a particular geoscience feature.

Wayside Exhibits



Interpretive Panels

There are six interpretive panels planned, each 24” x 36” in size. Panels provide an efficient media for communication of themes: they are on duty around the clock, allow key stories to be told in context with the view of the resource, are available at the visitor’s convenience, can alert visitors to safety issues, can provoke visitors curiosity, and can connect them intellectually and emotionally to the landscape, so they become a part of the story and understand the significance of the park. It is best to plan for the minimum number of signs needed. They will need annual cleaning, and typically the substrate carries a ten year warranty.

Geology at the overlook

Potential theme messages for the geology panel:

1. THESE CANYONS DEMONSTRATE HOW POWERFUL GEOLOGIC PROCESSES CAN

SHAPE A LANDSCAPE OVER VAST PERIODS OF TIME.

Subtheme 1.1

The sixteen million year story of geologic history can be “read” in the rock layers, like the chapters in a book.

Examples of Supporting Stories

Rock layers are read from bottom to top, with the bottom consisting of the oldest rocks, and the top consisting of the youngest rocks. Interesting geologic features at Cottonwood Canyon State Park include basalt pinnacles, or towers, and columnar joints that form as the lava cools, shrinks, and cracks.

Subtheme 1.2

The rock layers visible on the steep canyon walls formed in two major lava flows with a period of geologic “rest” in between.

Examples of Supporting Stories

The Grand Ronde Basalts came from a lava flow in the eastern part of the Columbia Plateau 16 to 15.6 million years ago and formed as the lava cooled. The Wanapum basalts came from lava flows 15.6 to 15.3 million years ago and have larger crystals than the Grand Ronde Basalts, weathering a red-brown color due to their high iron content. There is a thin sedimentary layer between the two basalt layers, indicating a brief period of geologic rest.

Subtheme 1.3

The John Day River emerged nine million years ago and continues to carve the canyons at Cottonwood Canyon State Park.

Examples of Supporting Stories

Once, the John Day River meandered over a wide, gentle plain. Uplift in the Blue Mountains near the headwaters of the John Day River increased the force of the water and its capacity to erode, causing the river to carve the winding canyon.

Subtheme 1.4

As part of the longest basalt flows on the planet, Cottonwood Canyon State Park shares geologic formations with other state parks in Oregon.

Examples of Supporting Stories

These same basalt flows are visible at Hat Rock, Minam River Canyon, Deschutes River Mouth, Tryon Creek, Silver Falls, LaTourell Falls, Saddle Mountain, and Cape Lookout State Park.

River ecology at the John Day River view from the shade structure

Potential theme messages for the river ecology panel:

3. THE SEEMINGLY STARK LANDSCAPE HAS A SURPRISINGLY DIVERSE FLORA AND FAUNA WHEN OBSERVED CAREFULLY, AND WILL BENEFIT FROM OUR STEWARDSHIP.

Subtheme 3.1

Riparian zones along the John Day River are a high priority for restoration.

Examples of Supporting Stories

A variety of native plants and animals depend upon this habitat for survival. The riparian areas have been degraded from grazing, and are infested with noxious weeds and non-native plant species. Partners such as the Western Rivers Conservancy and adjacent property owners are helping Oregon Parks and Recreation Department restore the natural habitat in Cottonwood Canyon State Park by removing the weeds and non-native plants, and replacing them with native plant species. Community members, school groups, and park visitors and volunteers will have the opportunity to help restore the riparian zones.

Ranching history facing the red barn

Interpretive Art

Along the wooden fence in the area around the barn, interpretive art will be installed to provide a figurative interpretation of the park themes.

Interpretive Panel facing the barn:

Potential theme messages for the ranching history panel:

2. THE LAND HAS ALWAYS PROVIDED FOR VARIOUS CULTURES THAT HAVE LIVED HERE.

Subtheme 2.2

Since 1850, the bottomlands along the John Day River have sustained families of European settlers.

Examples of Supporting Stories

Evidence of the first settlers can be seen in the landscape at Cottonwood Canyon: a rock wall here, remnants from a shelter there. These traces of history stand as reminders of Oregonian heritage and should be preserved as a testimony to the spirit of stewardship and adventure we share.

Subtheme 2.3

Ranching operations here have changed over time as they harnessed the landscape to graze livestock and grow crops, with the peak of activity in the late 19th and early 20th centuries.

Examples of Supporting Stories

Wheat provides food for a growing population; alfalfa provides food for cattle. At different times sheep and cattle have been grazed in the area. Oregonians continue to draw sustenance from the land along the John Day River.

Subtheme 2.4

Cottonwood Canyon State Park is bordered by an agricultural landscape that represents an evolution in land stewardship.

Examples of Supporting Stories

Wheat grown in this area is shipped around the world. Some agricultural areas share space with wind farms to produce energy.

Additional interpretation of the red barn

Enable a walking surface next to the barn around the perimeter, as close to the barn as possible to allow views into the interior. The pulley system from red tack shed used to make power at the ranch is being salvaged to interpret within the red barn. It will be placed on the floor of the barn, visible from the main doorway. Ideally, this could be re-constructed to show how it operated originally in phase two.

The north-east corner room of the red barn will be used to set up a variety of historic artifacts and tools. The sliding door on the exterior of the north side of the barn needs to remain functional to allow the door to be opened during tours.

Tribal history (facing the canyon views)

Potential theme messages for the Tribal history panel:

2. THE LAND HAS ALWAYS PROVIDED FOR VARIOUS CULTURES THAT HAVE LIVED HERE.

Subtheme 2.1

The land at Cottonwood Canyon State Park has sustained Native Americans for countless generations.

Examples of Supporting Stories

In the high desert, the John Day River provides life-giving water and food to people dependent on the land. The John Day River Basin continues to provide resources to Native Americans. One example is fishing in the John Day River. These illustrations of history stand as reminders of Oregonian heritage and should be valued as a testimony to the spirit of stewardship and adventure we share.

Restoration/ecology facing the native plant demonstration area (need to coordinate with natural resources staff to locate at a site with more advanced restoration work to be able to see visuals.)

Potential theme messages for the restoration/ecology panel:

3. THE SEEMINGLY STARK LANDSCAPE HAS A SURPRISINGLY DIVERSE FLORA AND FAUNA WHEN OBSERVED CAREFULLY, AND WILL BENEFIT FROM OUR STEWARDSHIP.

Subtheme 3.1

Riparian zones along the John Day River are a high priority for restoration.

Examples of Supporting Stories

A variety of native plants and animals depend upon this habitat for survival. The riparian areas have been degraded from grazing, and are infested with noxious weeds and non-native plant species. Partners such as the Western Rivers Conservancy and adjacent property owners are helping Oregon Parks and Recreation Department restore the natural habitat in Cottonwood Canyon State Park by removing the weeds and non-native plants, and replacing them with native plant species. Community members, school groups, and park visitors and volunteers will have the opportunity to help restore the riparian zones.

Subtheme 3.4

Micro-habitats provide conditions for a variety of plant species that are worthy of our protection and stewardship.

Examples of Supporting Stories

Desert crusts are hard soils that act as a sort of armor on the ground limiting the establishment of weeds. Slopes have very sparse, thin soils that are inhospitable for most plants; the plants that do grow on the slopes have niches in the different soils and substrates. Vibrant wildflowers bloom in the spring and summer, creating colorful arrays in the canyon.

Bird life at the observation blind

Potential theme messages for the bird life panel:

3. THE SEEMINGLY STARK LANDSCAPE HAS A SURPRISINGLY DIVERSE FLORA AND FAUNA WHEN OBSERVED CAREFULLY, AND WILL BENEFIT FROM OUR STEWARDSHIP.

Subtheme 3.3

The cliffs provide habitat for various bird species, including swallows, falcons, hawks, and eagles, while waterfowl can be seen along the John Day River and songbirds can be found in the trees and shrubs along the river.

Examples of Supporting Stories

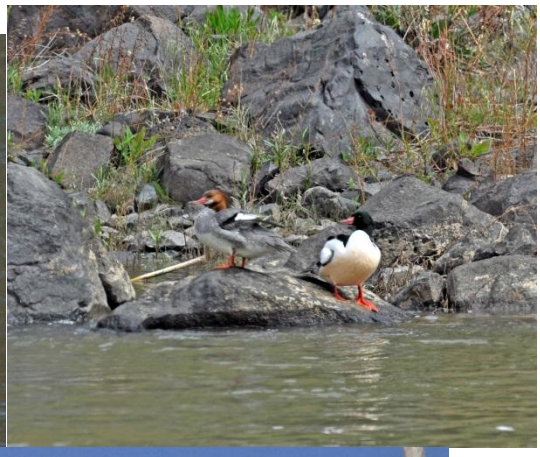
Binoculars are recommended to enjoy views of birds in the park. Falcons, hawks, and eagles often ride the thermals (air currents) that form near the cliffs from the strong winds that blow through the canyons. Waterfowl are most common on the river in spring and fall migration. Songbirds in trees and shrubs along the river are also most common during spring and fall migration. Those interested in helping with stewardship of birds in the park can volunteer to assist with bird counts.

Bird Observation Areas

The two bird observation areas include one for groups and one for nature photography. The larger platform could be located across from the future camper cabins along the river.

The platform needs to hold up to 30 people at one time, to accommodate a school class and adults. A fence or railing can provide support for the interpretive panel on birds. Shrubs and trees should be planted close to the sides of the structure, to allow viewing of songbirds in the shrubs. No shrubs or trees should block the view to the river. The smaller bird observation blind is designed for nature photography. Location is just before the rock shelter along the river. A visit to Ankeny National Wildlife Refuge would provide a view of a sample. Space is for three or four people.

Birds of Cottonwood clockwise: Canada Goose, Common Merganser, American Kestrel, Spotted Sandpiper.



Options for other types of interpretive facilities that could be created include:

A gathering area to seat 50 to 100 people is recommended near the campground, for development in phase two.

The Experience Center

An Outdoor Education Center is a facility designed to be used by both OPRD staff and other agencies and organizations such as schools, conservation organizations, or universities as a base for orientation, education, and research. Meeting rooms and classrooms are designed for multiple uses. The suggested name for this facility is the **Experience Center,** to reflect the focus on connecting visitors to park resources through a variety of first-hand experiences. This type of facility may be appropriate in situations where OPRD staff or Friends groups are limited in availability and a partner agency or organization has the staffing capability to offer appropriate programming. There are normally at least some interpretive exhibits to tell the main stories of the area.

General Design Principles for Interpretive/Education Centers

These facilities should help interpret the resource. The building should blend with the landscape, whether natural or historic. The building should be in harmony with the site, be designed for visitor flow, accommodate universal design principles, and consider sustainable design issues whenever possible.

Suggested Concept Design for the Experience Center

The style of the building and construction materials can be selected to fit in with the existing structures while providing a more contemporary look. The building is designed to serve school groups and independent travelers at the same time. It contains classrooms separated from the main exhibit area so each visitor type can have a high quality experience without distraction from the other. The exhibit space contains a series of exhibits providing an overview of the major stories, and also feature views of the canyon and John Day River.

Upon entering the building visitors have clear visual access to a Welcome Desk, an orientation area, and the exhibit area with the major park stories. Signage inside and outside the buildings directs visitors to the restrooms. Park brochures and trail maps are available to help guide outdoor experiences.

Key support functions for educational groups would include:

- Meeting site for environmental education groups and interpretive programs.
- Interpretive displays to tell the key stories of the park.
- One meeting room will feature a large window overlooking the river.
- One option is a water quality room that could include a display on water quality, an aquarium that can be set up with local aquatic life, and microscopes for studies.
- School bus capacity for grades K-8 is normally 60 students. This number can be referenced as meeting spaces are planned.
- Programs linked to the school curriculum will support the implementation of the Oregon Environmental Literacy Plan.

Cottonwood Canyon Experience Center Matrix

Education Experience	Description	Audience Objectives	Facilities	Programming	Community Infrastructure	Staffing/Equipment	Governance	Frequencies
Informal Class (Home School)	This is a small group of one - two adults with one - four children of various ages. This may be part of a formal home school curriculum or special visit for the purpose of education	Education information that may be linked to Oregon curriculum standards and the Oregon Environmental Literacy Plan.	Welcome Center, Picnic Shelter, Restroom, Parking Area, Trails, Interpretive Signs - Power, Water	Curriculum Materials, Library Materials, Internet resources,	Lodging, Special Tours, Food, fuel	Ranger Led, Signs	OPRD, COOP, Self Directed	3 - 4 month Year Round
Small Class	This is a organized school group of 15 - 30 kids, and 3 -4 adult teachers or chaperones	Education information that may be linked to Oregon curriculum standards and the Oregon Environmental Literacy Plan.	Welcome Center, Picnic Shelter, Restroom, Parking Area, Trails, Interpretive Signs - Internet Power, Water	Curriculum Materials, Library Materials, resources,	Lodging, Special Tours, Food, fuel	Ranger Support, Signs	COOP, Local Schools, Specialize Partnership	12 per year Sept - May
Large Class	This is an organized school group of multiple classes. This maybe 60 - 120 kids with 10 - 12 adult teachers of chaperones	Education information that may be linked to Oregon curriculum standards and the Oregon Environmental Literacy Plan.	Welcome Center, Picnic Shelter, Restroom, Parking Area, Trails, Interpretive Signs - Internet Power, Water	Curriculum Materials, Library Materials, resources,	Lodging, Special Tours, Food, fuel	Ranger Support, Signs	COOP, Local Schools, Specialize Partnership	5 per year Sept - May
Independent Researcher	This is an individual or small group of college or professional researchers. They are using the park and the region to advance understanding in a specific scientific area	The park is a support role to this experience. The objective is to support researcher needs in place and materials.	Welcome Center, Remote Lab, Trails, Camping, Power, Water,	Library Materials, Internet Resources	Food, Fuel, Social Connections	Ranger Support	Partnership	4 per year Year Round
Community Group	This is service or interest group that is visiting the park for a meeting, or small gathering of 15 - 30 people.	The park does not play an active education role for this group. Static or passive education/interpretive information maybe available, but not specifically to this group.	Welcome Center. Chairs, tables, Power, Restrooms, Water, Kitchen facilities	Library Materials, Internet resources	Outreach material	Building maintenance, signs.	Partnership	6 -10 per year Year Round

College Level Class	This is a small group of college students that are focused on a specific aspect of regional history, natural resources, or agricultural practices.	Education information is driven by external curriculum. The park is part of a larger course and is place that concepts can be demonstrated, or additional research can be conducted.	Welcome Center, Trails	Library materials, Internet resources	Outreach material	Building Maintenances, limited Ranger support	Partnership	1 per year Sept - May
Conservation Demonstration	This is an area in the park that represents Best Practices in conservation, weed management, stream restoration, agricultural practices.	Education information is driven by external curriculum. The park serves as demonstration site, or laboratory. The audience may be other conservation professionals, adults not familiar with conservation practices, or school groups who are learning about conservation	Welcome Center, Trails	Library materials, Internet resources.	Outreach Material	Natural Resource Support	Partnership	6-10 per year, Year Round
General Visitor Education	This is the general visitor to the site who may be visiting the park for the first time or may not have much experiences with the landscape.	The basic orientation to the site is provided to inform the casual visitor about the history of the region, the unique challenges with recreating at the site, safety information and emergency preparedness. Provide basic information for visitors to use the site in a safe responsible manner	Welcome Center, trails, signs	Emergency Plans and preparedness		Ranger Support	Partnership	Year Round
Hunting/Fishing Visitors	This is a group of visitors who may travel individually or small groups. They are familiar with the outdoors, but may not be familiar with the specific landscape. They are looking for opportunity to hunt or fish for sport or subsistence.	Provide orientation to the site to help avoid user conflict or unintended safety hazards to themselves, or others.	Welcome center, Trails, Signs, Kiosks	Emergency Plans and Preparedness	Transport, Game Dressing, Local Lodging	Ranger Support, ODFW	Partnerships	Spring/Fall

Wildlife Watchers	This is a group of visitors who may travel individually or in small groups. They are familiar with the outdoors, but may not be familiar with the specific landscape. They are looking for opportunities to see unique flora/fauna.	Provide orientation to the site to help avoid user conflicts or unintended safety hazards to themselves, or others.	Welcome Center, Trails, Signs, Kiosks, Library, Internet	Emergency Plans and Preparedness, Wildlife identification	Transport, Local Lodging	Ranger Support	Partnership	Year Round
Raft/Driftboat Users	This is a group of visitors who are traveling through some section of the park along the John Day River.	Provide orientation to the site to help avoid user conflicts or unintended safety hazards to themselves, or others.	River takeout areas, signs, kiosks, restrooms	Emergency Plans and Preparedness, Wildlife identification	Transport, Local Lodging	Ranger Support	Partnership	Spring/Fall
Overnight Hiker	This is a group of visitors who may travel through the park individually or in a small groups. This visitor is using the park or part of the park to have multiday recreation experience.	Provide orientation to the site to help avoid user conflicts or unintended safety hazards to themselves, or others.	Parking Areas, Overnight primative camping, trails, signs	Emergency Plans and Preparedness		Ranger Support	OPRD	Spring/Fall
Overnight Camper	This is a group of visitors using the camping facilities in the main development area of the park. They are there to experience the landscape, but may not have any experience or knowledge about the park, or region	Provide orientation to the site to help avoid user conflicts or unintended safety hazards to themselves, or others. Provide programming at the welcome area and/or amphitheatre to provide additional information about the resource of the park and the region	Camping areas, welcome center, restrooms, trails, signs, amphitheater.	Guided walks, evening programs, Junior Ranger, Special Guests	Regional Attractions, Food, Lodging	Ranger Support	OPRD	Spring/Fall

Interpretive Programming

Types of Interpretive Programming

Programming offered in the park can include:

- Junior Ranger programs designed for youth ages 6 to 12. (Once the campground is installed.)
- Interpretive programs sharing the natural and cultural stories of the park.
- Recreation programs that introduce visitors to a skill or technique for exploring the outdoors.
- Environmental education programs that help school groups to meet curriculum standards.
- Environmental education programming for adults.
- Guided raft trips.
- Citizen science projects tied to programs.
- College student programming linked to student research projects in the park.
- Cultural activities linked to the history and culture of the region.

Interpretive presentations will be led for visitors seasonally from April through October. Possible presenters include a mix of OPRD staff, volunteers, college students, other agency staff, Confederated Tribes of Warm Springs, and the Lower John Day Conservation Working Group. Some programs may be led by concessionaires, such as guided raft trips through the park. Guest speakers are an option to lead programs such as a fly-fishing workshop. Once the campground is developed, some programs would be based out of the amphitheater.

Program Topic Possiblilities

Workshops with Guest Speakers: Outdoor skills workshops could be coordinated to encourage the public to experience the park. A few examples include birding, art, geo-caching, fly-fishing, and nature photography.

Elders/Kids workshops could be conducted in local communities during shoulder season. Elders/Kids teaches “youth through youth” to create educational products such as video casts, plays, and postcards to share with community members and town visitors.

Astronomy programming with a telescope to allow views of a variety of celestial objects.

Progams that focus on ecologic restoration in the park and offer a citizen involvement opportunity.

Programs on the Federally listed Steelhead in the John Day River.

Wildlife watching programs for mammals, birds, and reptiles.

Spring wildflower walks to see the native plants in bloom along the base of the cliffs.

Presentations on local Tribes history presented by a member of the Tribe of Warm Springs.

Presentations on ranching history with a guest speaker from the area to share stories of local history.

Research presentation findings from college students on work they have been conducting in the park.

Art in the Parks programming that could feature demonstrations and presentations on the creation of various art forms using the canyon as inspiration.

Water quality programs where participants learn how to determine water quality based on macroinvertabrates found in the river.

Geology tours that visit the various geologic forms of interest in the park.

Concerts featuring local musicians.

Cultural resource stewardship education programs.

Interpretation and Environmental Education are Complementary

Interpretation :

"Interpretation is a mission-based communication process that forges emotional and intellectual connections between the interests of the audience and the meanings inherent in the resource." (From the National Association for Interpretation)

Interpretation aims to make emotional and intellectual connections from the park resources to each visitor's experience so that visitors will understand, appreciate, and help to preserve the parks. Environmental education, in contrast, has more formal educational goals and connects to statewide educational standards. Both environmental education and interpretation are appropriate and complementary in communicating our messages with park visitors. While interpretation usually occurs with non-captive audiences (park visitors), environmental education often is often conducted with captive audiences (school groups).

Environmental Education :

Environmental education is a learning process that increases people's knowledge and awareness about their environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action. (adapted by the Environmental Education Association of Oregon (EEAO) from UNESCO, Tbilisi Declaration, 1978)

Staffing for Interpretation and Environmental Education:

Interpretation and environmental education programs can be staffed by any combination of the following: OPRD staff, OPRD Friends employees, volunteers, other agencies, and concessionaires. OPRD also supports the use of the parks by teachers or professors leading programs on their own.

Example Interpretive Program Outline

Interpreter's Name: Paul M. Patton **Date**: -NA-

Park resource (Topic): Astronomy

Program Title: "Arcturus, the Eye of Coyote" [Meeting the Stars Series]

Program location: "Telescope Hill" at Cottonwood Canyon State Park (CCSP)

Audience: Campers

Goals and Objectives:

Goal: To create awareness and appreciation of the outstanding natural dark sky conditions at CCSP.

Objectives:

1. 70% of participants will be able to find Arcturus in the night sky (using the Big Dipper for navigation) [measure via demonstration]
2. 70% of participants will know three basic facts about Arcturus [measure via questioning]
3. 50% of participants will want to discover/learn more about astronomy as a hobby/family activity [measure via number of resource handouts taken & participation in general star-gazing session following the presentation]

Theme: [Cottonwood Subtheme 4.5] Star-watchers can enjoy the beauty of the night sky in this remote location.

Introduction: Greeting; identify self/agency; comfort/logistics; program length; questions welcome as we explore; introduce theme. (transition to Body)

Body (sub themes):

1. At CCSP, you can see many more stars and other celestial objects than at locations closer to larger town and big cities.
   Describe "light pollution", outdoor lighting issues/proper method(s), International Dark Sky Assoc…. [CCSP has night sky friendly lighting]
   (transition)
2. You can locate many interesting stars and celestial objects [including our "star of the night" Arcturus] by using the Big Dipper as a night sky navigational tool.
   Introduce/point out the Big Dipper and describe the global cultural/navigational significance of this constellation (numerous possible examples).

Demonstrate how the Big Dipper is used to find the North Star and Little Dipper

Point out Arcturus (using the Big Dipper's handle) and describe the star: ~36 light years away, brightest star in the Northern sky/ third brightest individual star overall, an orange giant star (if our Sun was the size of a BB, Arcturus would be a softball…), briefly describe the "main sequence".

(transition)

3. The star Arcturus [like most of the bright stars and constellations] has great significance to many cultures around the world.

   various cultural references/names/facts about Arcturus- including Oregon tribal reference as "Coyote's Eyeball"

   Paraphrase "Coyote's Eyeball" story.

   (transition)

Conclusion: Restate general theme and review activity by summarizing sub-themes; THANK YOU !; short Q & A; invite/encourage visitors to pick up/take supplementary information and to participate in general star-gazing session.

Props and supporting materials: astronomical telescope(optional), binoculars(loaners), OPRD android tablet, green laser pointer, a BB, a softball, planesphere (star finder wheel), prizes for satellite spotters, Astronomy Observation Tips to describe/share with visitors during star gazing session

* Interpreters are encouraged to review this form with your supervisor or Park Manager if possible.

Astronomy Observation Tips

The following information is intended for use in two main ways; Roving astronomy-for those not leading an astronomy program who are often in a night sky situation- you have led an evening campfire program or owl walk and you get questions about the night sky.
Or, use as interpretive night sky information to share as people are looking through a telescope and others are waiting in line, or your group is watching a meteor shower, eclipse, or other celestial event and you have time to share more about the night sky.

Under ideal conditions, you can see around 4000 to 8000 stars with the naked eye. A few of these stars are very bright and are easy to see even through the glow of city lights. But most stars are faint and can only be seen under dark sky conditions away from city lights and with no moon in the sky. With 10 x 50 binoculars, the number of stars that you can see increases to around 300,000. With an 8 inch diameter telescope, you can see around 7 and a half million stars. About 1/3 of all the stars that you see are binary stars (one star orbiting another). Stars can be blue-white, white, yellow, orange, or red. Our sun is a medium size yellow star.

Astronomers estimate there are about 100 billion stars in the Milky Way Galaxy that we live in, and about 100 billion galaxies in the universe. We live out towards the edge of our galaxy. The Northern Cross is in the plane of our galaxy, look there to see in towards the center of the galaxy.

Astronomers measure distances in space to the stars with a light year, the distance that light travels in one year. Light travels at 186,000 miles per second, the distance in miles equals around 6 trillion.

This may be of special interest if you are over the age of 50- Most of the stars in the Big Dipper are around 75 light years away. This means if you live to be 75 years old, on your birthday you would see light traveling from the Big Dipper that started on it's journey the day you were born!

On the Moon, check for dark areas (maria) and the white areas (highlands). Galileo thought the dark areas on the Moon were seas. We now know they are dry areas formed from lava flows. Be sure to check for any lunar or solar eclipses visible in Oregon.

To tell a star from a planet, notice if the light is steady or twinkling, stars twinkle because of the great distance, planets have a steadier light. Venus and Jupiter appear as bright white stars, Saturn as a yellow star, Mars as a dimmer red star.

The Perseid Meteor Shower peaks on August 12. It last for two weeks. The best viewing is after midnight, when the Earth is facing more directly into the stream of particles from Comet Swift-Tuttle. There can be up to 60 shooting stars per hour on a clear night. Shooting stars are bits of rock that burn because of friction with the atmosphere.

Bortle Dark-Sky Scale

The **Bortle Dark-Sky Scale** is a nine-level numeric scale that measures the night sky's and stars' brightness (naked-eye and stellar limiting magnitude) of a particular location. It quantifies the astronomical observability of celestial objects and the interference caused by light pollution and skyglow. John E. Bortle created the scale and published it in the February 2001 edition of *Sky & Telescope* magazine to help amateur astronomers compare the darkness of observing sites. The scale ranges from Class 1, the darkest skies available on Earth, through Class 9, inner-city skies.

The table below summarizes Bortle's descriptions of the classes.

Class	Title		Naked-eye limiting magnitude	Stellar limiting magnitude (with 12.5" reflector)	Description
1	Excellent dark-sky site		7.6–8.0	19 at best	Zodiacal light, gegenschein, zodiacal band visible; M33 direct vision naked-eye object; Scorpius and Sagittarius regions of the Milky Way cast obvious shadows on the ground; airglow is readily visible; Jupiter and Venus affect dark adaptation; surroundings basically invisible.
2	Typical truly dark site		7.1–7.5	17 at best	Airglow weakly visible near horizon; M33 easily seen with naked eye; highly structured summer Milky Way; distinctly yellowish zodiacal light bright enough to cast shadows at dusk and dawn; clouds only visible as dark holes; surroundings still only barely visible silhouetted against the sky; many Messier globular clusters still distinct naked-eye objects.
3	Rural sky	blue	6.6–7.0	16 at best	Some light pollution evident at the horizon; clouds illuminated near horizon, dark overhead; Milky Way still appears complex; M15, M4, M5, and M22 distinct naked-eye objects; M33 easily visible with averted vision; zodiacal light striking in spring and autumn, color still visible; nearer surroundings vaguely visible.
4	Rural/suburban transition	green yellow	6.1–6.5	15.5 at best	Light pollution domes visible in various directions over the horizon; zodiacal light is still visible, but not even halfway extending to the zenith at dusk or dawn; Milky Way above the horizon still impressive, but lacks

					most of the finer details; M33 a difficult averted vision object, only visible when higher than 55°; clouds illuminated in the directions of the light sources, but still dark overhead; surroundings clearly visible, even at a distance.
5	Suburban sky	orange	5.6–6.0	15 at best	Only hints of zodiacal light are seen on the best nights in autumn and spring; Milky Way is very weak or invisible near the horizon and looks washed out overhead; light sources visible in most, if not all, directions; clouds are noticeably brighter than the sky.
6	Bright suburban sky	red	5.1–5.5	14.5 at best	Zodiacal light is invisible; Milky Way only visible near the zenith; sky within 35° from the horizon glows grayish white; clouds anywhere in the sky appear fairly bright; surroundings easily visible; M33 is impossible to see without at least binoculars, M31 is modestly apparent to the unaided eye.
7	Suburban/urban transition or Full Moon	red	4.6–5.0	14 at best	Entire sky has a grayish-white hue; strong light sources evident in all directions; Milky Way invisible; M31 and M44 may be glimpsed with the naked eye, but are very indistinct; clouds are brightly lit; even in moderate-sized telescopes the brightest Messier objects are only ghosts of their true selves. At a full moon night the sky is not better than this rating even at the darkest locations with the difference that the sky appears more blue than orangish white at otherwise dark locations.
8	City sky	white	4.1–4.5	13.5 at best	Sky glows white or orange—one can easily read; M31 and M44 are barely glimpsed by an experienced observer on good nights; even with telescope, only bright Messier objects can be detected; stars forming familiar constellation patterns may be weak or completely invisible.
9	Inner-city sky	white	4.0 at best	13 at best	Sky is brilliantly lit with many stars forming constellations invisible and many weaker constellations invisible; aside from Pleiades, no Messier object is visible to the naked eye; only objects to provide fairly pleasant views are the Moon, the Planets, and a few of the brightest star clusters.

(Adapted from Wikipedia, the free encyclopedia.)

Cottonwood Canyon State Park observations to calculate the Bortle Dark Sky rating for the site have resulted in a Class 4: Rural/suburban transition. This will allow excellent views of the Milky Way Galaxy and the Andromeda Galaxy (the most distant object visible to the naked eye at 2.5 million light years). A telescope can be used to observe all of the most notable astronomical objects in the Northern Hemisphere at this site. Naked-eye limiting magnitude is 6.1 to 6.5. This will allow views of such objects as M20- Trifid Nebula (6.3), M46- Open Star Cluster (6.5), and RW Cephei- a red hypergiant star and one of the largest stars known (nearly as large as the orbit of Jupiter).

The constellation Orion viewed from Cottonwood Canyon.

Junior Ranger Program

The Junior Ranger Program can provide memorable, quality experiences that connect youth with nature in the Oregon State Parks system. With our help, they can explore the natural world, deepen their understanding of natural systems and cultural resources, and gain the confidence to take action and protect natural spaces both in the park system and in their local communities.

We can help youth discover the joys of camping, hiking and relaxing in a natural setting while guiding them to have fun in a safe and sustainable manner.

Our program can be an important part of healing the disconnect between youth and the natural environment. By addressing "nature deficit disorder," as Richard Louv calls the unhappy state of youth alienated from wild spaces, we can help to nurture new generations who value and seek out time spent in nature.

Junior Ranger Program Components

The "Junior Ranger Program" is an umbrella program developed to connect youth with nature. There are two components to this overall program: the "Passport Program" and "youth programming."

The Passport Program is an award system in which children, aged 6 to 12, complete self-guided activity books at parks to complete levels and receive awards. The Passport Program consists of 3 levels—for each level there is a self-guided activity book to complete and a corresponding award upon completion. Each park creates their own park-specific activity books; awards can be ordered through Reservations Northwest.

Youth programs are guided lessons/activities that staff and volunteers deliver and children attend at parks. Your park may already have outlines for youth programs; you will also have the chance to create new ones.

Children can choose to participate in the Passport Program, in youth programs, or in both. A child does not have to sign up for the Passport Program to attend a youth program. Likewise, a child who attends a youth program does not have to sign up for the Passport Program. Children do, however, benefit the most by participating in both!

Park staff should reference the Junior Ranger Manual produced annually by the Interpretive Team for current information on the program.

"*Interpretation addressed to children (say, up to the age of twelve) should not be a dilution of the presentation to adults, but should follow a fundamentally different approach. To be at its best it will require a separate program*."
-Freeman Tilden in" Interpreting Our Heritage"

Goals for the Junior Ranger Program:

Goal 1: By delivering world-class, engaging experiences, the Jr. Ranger Program will reconnect youth with nature.

Goal 2: The Jr. Ranger Program will enable youth to deepen their understanding of the natural and cultural heritage found in the parks.

Goal 3: The Jr. Ranger Program will cultivate environmental stewardship in youth, inspiring them to become guardians of the parks.

Goal 4: The Jr. Ranger Program will strive to reach out to multicultural audiences and make all programs accessible in line with ADA standards.

Goal 5: The Jr. Ranger Program will enhance its marketing outreach to enable greater awareness of the Program and its benefits.

Example Interpretive Program Outline-Junior Ranger Program

Interpreter's Name: Paul M. Patton **Date**: -NA-

Park resource (Topic): The Birds of Cottonwood Canyon State Park (CCSP)

Program Title: Your "Big Day" at Cottonwood Canyon

Program location: Welcome Center; Interpretive Trail/wildlife blind

Audience: Junior Rangers with adult guardian(s)

Goals and Objectives:

Goal: To create awareness and understanding of CCSP's diverse landscape/ecology and the subsequent variety of avian species that can be observed at the park.

Objectives:

3. 80% of participants will actively spot and document bird species during the guided walk [measure via observation]
2. 80% of participants will know the three main geographical zones of CCSP (riparian/bottomland; slopes/cliffs; uplands) as related to ecology and the occurrence of different birds [measure via questioning]
3. 50% of participants will want to discover/learn more about birding as a hobby/family activity [measure via number of resource handouts taken]
4. 60% of formed spotter teams will participate in the afternoon session [measure via attendance]

Theme: [Cottonwood Subtheme 3.3] The cliffs provide habitat for various bird species, including swallows, falcons, hawks, and eagles, while waterfowl can be seen along the John Day River and songbirds can be found in the trees and shrubs along the river.

Introduction: Greeting; identify self/agency; comfort/logistics; program length; Q & A afterward; introduce theme. (transition to Body)

Body (sub themes):

4. The three primary ecological zones(PEZ) at CCSP provide outstanding opportunities for spotting a wide-variety of bird species.
   Describe and indicate: riparian/bottomland; slopes/cliffs; uplands
   (transition)
5. The three PEZ provide different crucial resources for the birds that inhabit and/or utilize them.
   Identify and describe PEZ habitats: basic ecology and available food type(s)
   (transition)

6. Bird Watchers (including JR!) are attracted to and enjoy CCSP because of its diverse landscape and resultant bird populations that vary with the seasons.
   Describe seasonal variations of birds spotted at CCSP

   Lead short hike along river trail; encourage/assist spotter groups with documentation of observed birds.
   (transition)

7. Participating in a "Big Day" at CCSP is an enjoyable way to experience CCSP and to discover the numerous species of birds that inhabit it.
   Describe what a "Big Day" is-compared to a birder's "Big Year"; describe "rules"

   Encourage participants to participate in the CCSP "Big Day" and to return later in the day (at designated time/location) with their spotters list-for prizes

Conclusion: Restate general theme and review presentation by summarizing sub-themes; THANK YOU !; short Q & A; remind/encourage visitors to attend/participate in the concluding activity later in the day.

Props and supporting materials: spotting scope, binoculars(loaners), OPRD Android tablet, bird photos, bird spotter cards, pencils, prizes for bird spotter teams

* Interpreters are encouraged to review this form with your supervisor or Park Manager if possible.

Environmental Education Programs

Oregon State Parks provides three categories of environmental education programming:

- Youth environmental education that connects to the school curriculum.
- Youth environmental education that is not school curriculum based (such as Junior Ranger and Scout programs.)
- Adult environmental education.

The Oregon Environmental Literacy Plan was created in 2010, with participation from OPRD in the process. The plan defines environmental literacy as:

“Environmental Literacy is an individual’s understanding, skills and motivation to make responsible decisions that consider his or her relationships to natural systems, communities and future generations.”

All three forms of environmental education offered by Oregon State Parks will help to achieve the goals of the Oregon Environmental Literacy Plan. Oregon State Parks periodically offers workshops in environmental eduation to support staff and volunteers involved in this type of programming.

"The findings are stunning: environment-based education produces student gains in social studies, science, language arts, and math; improves standardized test scores and grade point averages; and develops skills in problem-solving critical thinking, and decision making."

-Richard Louv

OPRD Environmental Education Program Outline (Sample)

Interpreter/Naturalist's Name: **Date:**

Park resource (topic): Birds

Park: Cottonwood Canyon State Park

School/group:

Grade level: 6th

Group size: 30

Program length: two hours

Curriculum connections (List at least one school curriculum standard that this program supports.)

6.2 Interaction and Change: The related parts within a system interact and change.

6.2L.2 Explain how individual organisms and populations in an ecosystem interact and how changes in populations are related to resources.

6.3 Scientific Inquiry: Scientific inquiry is the investigation of the natural world based on observations and science principles that includes proposing questions or hypotheses, and developing procedures for questioning, collecting, analyzing, and interpreting accurate and relevant data to produce justifiable evidence-based explanations.

6.3S.1 Based on observations and science principles, propose questions or hypotheses that can be examined through scientific investigation. Design and conduct an investigation that uses appropriate tools and techniques to collect relevant data.

Oregon Environmental Literacy Plan (Show at least one strand that this program connects to and supports.)

1) Systems Thinking: Students apply systems thinking skills to study various types of systems and issues from a holistic perspective, striving to understand the relationships and interactions among the systems' parts. Students use the knowledge gained to consider the implications and consequences of choices on the economic, ecological and social systems within which they live, in order to optimize outcomes for all three systems.
a. Systems Structure. Understand the complex structure of systems and how system structure determines outcome. Describe the facets of a system's structure, and model changes to that structure.

2) Physical, Living and Human Systems: Students understand Earth systems' characteristics, including physical, living and human systems.

b. Structure, function, interaction and change in living systems over time. Explain the dynamic and interconnected nature of Earth's living environment.

List the goals and objectives that will help the program connect to the Oregon schools curriculum and support the Oregon Environmental Literacy Plan, while educating students about a park resource.

Goals: (Developed from the curriculum connection)

Students will learn how individual organisms and populations in an ecosystem interact and how changes in populations are related to resources.
Students will learn bird roles within a system.
Students will gain understanding in ecological connections between birds and other components of the ecosystem.
Students will learn how to conduct an investigation that uses appropriate tools and techniques to collect relevant data.

Educational Objectives (measurable and linked to school standards):

Students will investigate and observe species diversity and interactions among organisms in an ecosystem.
Students will conduct a bird survey using appropriate tools and techniques.

Stewardship Objectives: (measurable and linked to the resource)

Students will gain an appreciation for the connections from birds to other life forms in a temperate rain forest through first hand observation.
Students will be introduced to concepts of birding ethics.
Vocabulary (List terms students need to know to understand the content.)

ornithology
beak or bill
down, contour, and flight feathers
eggs
feet or talons
warm-blooded
song, call
crop
gizzard
temperate rain forest
habitat

Introduction (Review what will happen, introduce vocabulary and concepts.)
20 minute introduction
One hour and 20 minute walk- will cover about one mile.
20 minute conclusion
Discuss roles of birds in an ecosystem.
List examples from the habitats found in the park.
Discuss importance of birds to ecology, the economy, quality of life.
Define birds and review vocabulary terms.
Review common birds and how to identify.
Play common calls.
Review how to use binoculars and data sheets.
Review field survey process, one data sheet for bird species, one for bird ecology connections.
Recruit volunteer survey recorders.
Recruit volunteer to carry litter bag for any trash discovered.
Recruit five volunteers to do bird calls.
Recruit field guide assistants.

Activities (Design this part of the program to connect to a park resource in a hands-on manner. Do not duplicate activities that could be done in a classroom. Activities are normally conducted outdoors.)

Outdoor, spend five minutes with group reviewing how to focus binoculars and practicing on a stationary object.

Explain what will be needed for group success, quiet will be important.
Explain how to share bird observations- using a clock to describe where a bird is in a tree.
Avoid sudden movements.
Explain how to make your ears bigger by cupping your hands, listening for bird calls.
Explain what pishing is, and how we will only use it on a limited basis.

Encourage group to pick up any litter on the walk and place in the garbage bag. Point out the impact of various types of litter found on wildlife.

At planned stops, observe bird activity in the area. Have volunteers with field guides confirm identity of birds. Have recorder with species list record birds seen or heard.

At planned stops, give students an opportunity to discover ecology connections, and record the data.

Along the trail, be open to new discoveries from students of either bird species or bird ecology connections. Discuss each and ask the students to comment on how the bird is connected to other parts of the ecosystem.

Depending on the season of the year and park, use 'pishing' on a limited basis to bring in birds for observation and also discuss mobbing behavior.

Discuss observations of bird ecology connections, have recorder describe examples.

Conclusion (Review concepts and vocabulary learned.)

Review birds recorded by sight or sound. Have student volunteer read the species list. Ask students to comment on the roles in the ecosystem for species observed. Discuss any interactions observed between species and the implications for local ecology.
Ask if students had a favorite bird for the day.

Review bird ecology connections. Have student volunteer read the ecology connections.
Discuss the ecology connections for the local ecosystem.
Ask if students found one ecology connection more interesting.
Discuss how changes in resources might result in changes in bird populations.

As possible, make connections to the vocabulary learned in reference to birds observed and ecology connections.

Note any litter picked up.

Thank volunteers for their assistance.

Put away equipment.

Thank group for their participation and give suggestions for how they could be involved in bird research projects if interested. This could include citizen science projects such as Audubon bird counts or Cornell feeder watch projects, for example.

Props, supporting materials, resources:

Binoculars for students (7 x 35 mm recommended)
Field guide to birds

Visuals of birds of area for introduction, either slides or posters.
Bird song player
Checklists and clipboards

Teacher and student evaluation plan:

Ask teachers to complete a one page evaluation form to gain feedback on program success and areas for new ideas.

Keep notes on classes led for student responses and feedback to program activity.

*Interpreters/Naturalists are encouraged to review this form with their supervisor or Park Manager if possible.

Phase One Implementation Schedule for Park Opening

Project	Description	Location	Lead	Installed by
Webpage	See page 39	The Net	Chris Havel	July 2013
Highway signs	See page 40	See page 40	Tammy Abbott	July 2013
Orientation displays (4)	See page 40	See page 40	Julia Hill	August 2013
Trailhead maps (5)	See page 40	See page 40	Tammy Abbott	August 2013
Brochures	Park brochure and trail map.	Welcome Center	Jean Thompson	July 2013
Interpretive Fence Art	See page 46	See page 46	Julia Hill	August 2013
Youth activities	TBD	Welcome Center	Paul Patton	September 2013
Interpretive Tour	TBD	Welcome Center	Paul Patton	September 2013
Brand creation/activity	TBD	TBD	Chris Havel	September 2013
Lets Go Camping demo	Sample camps	TBD	Jill Nishball	September 2013
Poet Laureate	Guest speaker	TBD	Chris Havel	September 2013
Cottonwood 4x5 photo art	Magnets and display	Welcome Center	Chris Havel	September 2013
Music	Local muscicians	Welcome Center	Chris Havel	September 2013

Park Opening Schedule:

Tuesday, September 24, 2013, 6 pm: OPRD Commission has dinner in the park.

Wednesday, September 25, 2013, 9 am to 3 pm: Grand Opening Activities

Saturday, September 28, 2013 and Sunday, September 29, 2013: Special programs offered

Implementation Plan

Phase Two:

- Design and fabricate interpretive panels or wayfinding/orientation panels as appropriate for park development such as campground and cabins development.
- Assist with design for an outdoor meeting site to support programming for campground users.
- Develop Junior Ranger programs for youth to support camper experience.
- Work with partners to develop special events and appropriate programs in the park.
- Work with concessionaires to enhance activities such as guided raft trips through training opportunities such as CIG workshops.

Phase Three:

- Support planning for Experience Center.
- Design and fabrication of interpretive and orientation exhibits as part of Experience Center construction.
- Work with partners to develop programming based from the Experience Center.

Cost Estimates

Interpretive Panels and Maps

Design Costs

For groups of three or more interpretive panels, estimate $3000 per panel for design and fabrication costs for standard 24” x 36” panels. The cost increases per panel if only one panel is created.

Substrate Choices and Costs

Options for substrates range from three types of modern laminates to fiberglass (no longer recommended) to porcelain enamel (costs around ten times as much as laminates.) For costs for fabrication of panels plan for an average of $40 to $50 per square foot for laminates once you factor in costs for fees and proofing. This is for a standard 24" x 36" inch panel that is often 1/8 inch thick. Costs are higher for special larger size panels such as 4’ x 8’ that will likely need to be either 1/2 inch or one inch thick. A 10 year warranty is typical. Check with the Interpretive Coordinator for current recommendations as products are continually evolving.

Frame Options and Costs

Core10 steel frames are being researched for possible use in Cottonwood Canyon State Park. Pricing structures are under development. The advantage of this type of steel is the lack of need to paint the frames, and a longer life.

Interpretive Program Development, Evaluation, and Training Support

OPRD will provide interpretive training to park staff and volunteers through:

- Annual Interpretive Core Training in June, a four day training designed to prepare staff and volunteers to present interpretive programs.
- Provide an Interpreters Manual, updated on an annual basis.
- Annual Junior Ranger training, designed for staff and volunteers leading Junior Ranger programs for youth ages six to twelve years of age.
- Provide a Junior Ranger Leader's Manual, updated on a yearly basis.
- Provide training for managers that oversee interpretive activities.
- Provide interpretive skills workshops to enhance the abilities of park staff and volunteers.
- Certified Interpretive Guide workshops through the National Association for Interpretation are held periodically to further staff development.
- Presentation feedback forms are available to support interpreters giving presentations.
- See the Interpretive Coordinator for manuals and supporting forms available.

View of the John Day River looking upstream in the park.