

CORRIDOR MANAGEMENT AND INTERPRETIVE PLAN 2018

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Scenic Byway Partners



Wilderness Associates



Deschutes Cultural Coalition
a partner of the Oregon Cultural Trust



Washanaksha Coalition
Warm Springs, Oregon



North Klamath County Chamber of Commerce



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Chapter I: INTRODUCTION

Statement of Significance

The Cascade Lakes National Scenic Byway on the Deschutes National Forest takes the Byway traveler to Central Oregon's high country and volcano wilderness. Here, visitors follow a journey of water as it flows through an alpine volcanic landscape, nurturing life patterns along the way. Views of water bodies and geological formations are everywhere, creating dynamic and unbelievable scenery. Explosive eruptions and massive lava flows of the past have shaped the many lakes, springs, and creeks, providing a unique visitor experience for those driving through this volcanic paradise.

Vision

The vision for the Cascade Lakes National Scenic Byway and its surrounding area is to protect and preserve its intrinsic scenic, natural, and recreational qualities for future generations by enhancing and maintaining its image, identity, and integrity through collaborative partnerships and community connections.

In 2006, a community visioning process was undertaken with participation by one in seven local citizens and then adopted by the City of Bend. One vision element from the Bend 2030 Community Vision Action Plan supports conservation education and forest stewardship through the National Scenic Byways Program and the National Forest Foundation by engaging communities in dialogue-based collaborative processes to find common ground and develop proactive solutions.

Another vision element supports a system of multi-modal alternative forms of transportation that balances recreation needs and protects the forest ecosystem. A third vision element is promoting cultural tourism in partnership with Warm Springs Indian Reservation and The Museum at Warm Springs, Arts Central, Central Oregon Community College, Deschutes Cultural Trust Coalition, and Bend 2030. All of these vision elements work together to create connectivity between public lands and communities that are gateways to Scenic Byways in Central Oregon.

National Scenic Byways must possess outstanding qualities that exemplify the regional characteristics of our nation, including one or more of six intrinsic qualities: natural, scenic, recreational, archaeological, cultural, and historic. The most outstanding intrinsic qualities of the Cascade Lakes National Scenic Byway are scenic, natural, and recreational qualities, in order of significance.

The vision of the Federal Highway Administration's National Scenic Byways Program is "To create a distinctive collection of American roads, their stories and treasured places." Scenic Byway designations are grassroots collaborative initiatives that sustain and promote the economic vitality of communities through tourism and protect the area's unique natural and cultural resources through conservation and education. Cascade Lakes is part of the America's Byways collection of 151 Scenic Byways in 44 states across the country.





Description

The Cascade Lakes Scenic Byway begins in Bend, Oregon, an urban area with a population of approximately 80,000 people located on the eastern slopes of the Cascades Mountain Range. The view of Mt. Bachelor dominates the skyline with its commanding presence as the route proceeds in a westerly direction up to an elevation of 7,000 feet. There are 14 main alpine lakes, each with its own set of unique attractions that appear one by one along the Byway like a string of pearls. Forested vistas of snowcapped mountain peaks, meadows, and lava flows all provide an uncompromised setting for a diverse variety of wildlife and vegetation.

Throughout the Deschutes National Forest, a spectrum of outdoor recreation activities is available to visitors throughout the entire year, with several resorts, campgrounds, fishing, boating docks, summer cabins, trails, and beaches located along the Byway. The Deschutes ranks number three in highest visitation to national forests in the Pacific Northwest Region. Its 1.6 million acres of national forest lands attracts over 2.5 million visitors each year, according to the 2008 National Visitor Use Monitoring Study.

A portion of the Cascade Lakes Scenic Byway, between Mt. Bachelor and Davis Lake, is closed to traffic during winter, although the North Gateway Scenic Byway Viewpoint close to Bend can be visited year-round. Winter recreation activities occurring around and on the closed sections of the Byway include cross-country skiing, snowshoeing, snowmobiling, dogsled races, and snowcat rides between Mt. Bachelor and Elk Lake Resort.

The official start of the 66-mile Byway is at the Deschutes National Forest boundary at the City of Bend limits, approximately 1/2 mile south of Mt. Bachelor Village. The Byway can be accessed from Highway 97 to the east by traveling on Road 40 and Road 42 from Sunriver, Road 43 from LaPine, Road 61 from Gilchrist and Crescent, and Highway 58 from the south.

Byway History

The Byway was once a red road, paved with red volcanic cinders in the 1950s. It was called Century Drive because it was part of a 100-mile round-trip route from Bend to Elk Lake. This provided a unique experience for visitors exploring the beautiful Cascade Lakes area of the Deschutes National Forest. Red roads became a Central Oregon hallmark. This historic red road was paved over with black asphalt in the 1980s. Numbered wood posts still remain along the Byway as part of the original 1970's brochure-guided Cascade Lakes Discovery Tour.

At the heart of the Byway is the historic Elk Lake Guard Station, which was recently placed on the National Register of Historic Places. It now functions as a visitor information facility staffed by Forest Service interpretive volunteers. Other reminders of the Byway's historic past are highlighted in the form of pictographs, lithic scatters, remnants of human settlements, and hunting camps. Historic hand-carved storyboards describe Sparks Lake, Devils Lake, and Elk Lake. Close to the Osprey Point Interpretive Site is an interpretive trail near Rock Creek Campground that highlights the old gravesite of pioneer sheepherder Billy Quinn and a blazed tree marked by early Forest Service Ranger Cy Bingham in 1904.





In 1989, the Cascade Lakes Highway was officially dedicated as a National Forest Scenic Byway by the U.S. Forest Service and also an official tour route of the Corridor 97 Association's "Highway of the Cascades" Tour Route Program. Scenic America, a non-profit conservation organization advocating for the protection of the visual environment and promotion and designation of Scenic Byways, selected Cascade Lakes Scenic Byway as one of its top-ten scenic drives in the United States.

In 1994, the Ray Atkeson Memorial Interpretive Trail at Sparks Lake was dedicated as a model partnership for the region and built by an entire Oregon community. This place served as a catalyst for celebrating and preserving scenic views in the Cascade Lakes Recreation Area and for the 1998 designation of Cascade Lakes Highway as a National Scenic Byway. The Scenic Byways Program for the Deschutes National Forest was then instigated in 1994 with the development of Byway objectives, goals, and strategies. These were captured in Corridor Management and Interpretive Plans that would provide a comprehensive master planning approach to enhance and maintain the Byway's scenic, natural, and recreational qualities and deliver conservation messages through interpretation and outdoor environmental education.

In 1995, a Watershed Analysis for the Cascade Lakes area was completed to guide future restoration and management activities. Cascade Lakes Highway was identified as the main access and a key scenic travel corridor through a volcanic wilderness filled with forests, meadows, springs, rivers, creeks, and alpine lakes. Also identified was the need for more day-use activities, such as sightseeing, and the need for a comprehensive approach to conservation education and interpretation in the area. This plan was subsequently updated in 2005 as the Snow Lakes Watershed Analysis.

In 1996, a Corridor Management Plan and an Interpretive Plan were completed for Cascade Lakes Highway. These plans were used to seek community support and create partnerships for developing a conservation education program for the Byway to accomplish the goals outlined in the plans. In developing these plans, a great deal of input was gathered from visitors, local businesses, and residents regarding the types of information and conservation education desired for the Cascade Lakes Recreation Area.

In 1997, the Cascade Lakes Highway received its designation as a State Scenic Byway. The Deschutes National Forest, Bend Visitor & Convention Bureau, and the Bend Chamber of Commerce worked closely with the Oregon Department of Transportation to achieve this designation. The Interpretive Plan helped shape the Corridor Management Plan and both were instrumental in documenting why the Cascade Lakes Highway deserved to be nominated for State and National Scenic Byway designations.

In 1998, Cascade Lakes Highway became a National Scenic Byway because of its outstanding natural, scenic, and recreational qualities, regional significance to visitors, and enhancement of livability for Central Oregon residents accessing public lands through the Byway. The Byway became an integral part of the Oregon Scenic Byways Program, which is made up of a cohesive group of Byway leaders throughout the state. The Byway contributed to and benefited from a very effective marketing campaign orchestrated by Travel Oregon. Its national designation made it eligible to apply and complete for Federal Highway Administration (FHWA) funds.





In 2000, the Ray Atkeson Wayside was the first Scenic Byway enhancement project to be funded by FHWA, for \$22,500. Since then, the Deschutes National Forest Scenic Byways Program has been successful in bringing almost four million dollars to the Cascade Lakes Scenic Byway. This has made it possible to develop the image and identity as a public space destination and to maintain its integrity as a National Scenic Byway through its conservation education and interpretation program and a grassroots approach.

In 2004, the Cascade Lakes Scenic Byway was awarded \$570,000 through the Oregon Forest Highway Program to design and build the North Gateway Scenic Byway Viewpoint and South Gateway Scenic Byway Interpretive Site and provide site restoration and visitor amenities to the historic Elk Lake Guard Station at the heart of the Byway. A total of 32 new interpretive signs were added along the Byway.

In 2008, the Scenic Byway Welcome Station received a grant of \$112,000 from the Scenic Byways Enhancement Program to complete Phase-I Planning: NEPA, site-selection feasibility study, update the Corridor Management and Interpretive Plan, provide training to Byway Community Group volunteers, and to develop a Comprehensive Byway Sign Plan and Design Guide.



10th Anniversary Celebration at Elk Lake Guard Station.

Also in 2008, the Deschutes National Forest celebrated the 10th anniversary of the Cascade Lakes National Scenic Byway by hosting a cultural tourism event that recognized its Byway partners and volunteers at the recently restored Elk Lake Guard Station. The community was invited and, together with media coverage, more awareness was created for the Deschutes National Forest Scenic Byways Program. Enhancements include two gateway interpretive sites, a restored historic guard station site for interpretation, and a Tour of Interpretive Sites, which features 16 select sites in a new brochure focused on the Byway.

In 2009, the Deschutes National Forest Scenic Byways Program sponsored its first-ever Scenic Byways Open House. The community was invited to learn more about the Forest's Scenic Byways Program and to give their ideas and input on what type of information and interpretation was desired on the Cascade Lakes Scenic Byway. A questionnaire was made available online and at the Open House. The results were presented to the Forest Leadership Team in early 2010 and can be found in Chapter V of this document. The results of an earlier questionnaire circulated during the summer of 2008 are also available.

In 2010, a NEPA analysis was completed for a proposed Scenic Byway Welcome Station to be located on the Byway close to Bend and the Deschutes River at the junction of Road 41. An extensive



community outreach strategy was undertaken to receive as much input as possible because of the importance of this facility to benefit the Byway traveler and to enhance economic vitality for gateway communities to the Byway. This proposed project meets the primary goals and objectives for the Byway to: 1) preserve the Scenic Byway as a major attraction in the Pacific Northwest and, 2) provide conservation education and general recreation information at key locations on the Scenic Byway. In addition to the completion of this update, a Comprehensive Byway Sign Plan and Design Guide is another resource for this Corridor Management and Interpretive Plan.

In 2011, the Federal Highway Administration awarded \$73,240 for Phase II – Design for the Welcome Station Project through the National Scenic Byways Grant Program.

In 2012, the Cascade Lakes Scenic Byway received \$1,067,900 for planning, design, and construction of the Welcome Station Multi-Use Path Undercrossing, Trailhead and Trail Connectors from the Federal Highway Administration through its National Scenic Byways Grant Program.

In 2013, the Scenic Byway Welcome Station Project received \$1,039,040 for Phase III – Construction from the Federal Highway Administration through its National Scenic Byways Grant Program.

In 2014, the Cascade Lakes Scenic Byway received \$859,000 in construction funds for the Welcome Station and Multi-Use Path Undercrossing, Trail Connectors projects from the Federal Highway Administration through its Public Lands Highway Division Grant Program.

Between 2000 and 2014, Central Oregon communities and the Deschutes National Forest have been very fortunate to receive funding from the Federal Highway Administration for several projects. This was primarily due to having a comprehensive master planning approach and strong community support as demonstrated through implementation of this Corridor Management and Interpretive Plan. The sustainability and credibility of this plan were due to its grassroots origins and tremendous efforts to continually involve the community through open houses, partnerships, and cultural tourism events.

A Scenic Byway Community Group continued to work closely with the Deschutes National Forest Scenic Byways Program providing innovative ideas for partnerships, marketing, funding, visibility, and education. Also, the extraordinary on-the-ground expertise of the Bend/Fort Rock District Interdisciplinary Byway Planning Team has been invaluable. A unique and critical feature of the entire planning process has been to incorporate the Bend 2030 Community Vision and Action Plan with the Corridor Management and Interpretive Plan.

The Bend 2030 Community Vision and Action Plan was the result of a City of Bend planning process which began in 2006. One in seven citizens contributed opinions and ideas in order to create a road map and picture of how their community should look and feel in the year 2030. Several Bend 2030 Action Plan items incorporated into the Byway Plan include multi-modal connectivity, stewardship and conservation education through partnerships and dialogue-based collaborative processes, and cultural tourism events with community partners.





Recent accomplishments in 2012-14 on the Cascade Lakes Scenic Byway that support the Community Vision and Action Plan items incorporated with the Corridor Management Plan goals and strategies were the following:

- In August 2012, the Transportation Research Board held its Landscape and Environmental Design Committee's Mid-Year Meeting "Multi-Modal Transportation and Community Connections" on the Cascade Lakes Scenic Byway and Deschutes National Forest bringing many transportation leaders throughout the country and Pacific Northwest coming together to collaborate on cutting edge efforts for multi-modal transportation.
- Stewardship and conservation education were the focus for new outdoor interpretive panels along an accessible entry walkway to be installed at the new Welcome Station with learning through the visual arts, tactile sculpture, and creative writing. With an interpretive theme based on hydrology and "Following the Water," the storylines were based on sub-themes on climate change, culture, geology, volcanoes, ethnobotany, wildlife, vegetation, fisheries, and history.
- Support for cultural tourism events continued to happen annually each September with award-winning writers Kathy Bowman and Susan Whitney leading the fifth in a series of "Haiku Highway Writing Workshops" which began in 2010. The haiku poets-in-residence are based out of the historic Fall River Guard Station. Future haiku events include partnerships with Bend's local haiku chapter "One Breath Poets" and the local chapter HAPA EA for cross cultural awareness as part of the Deschutes National Forest outreach through the Asian and Pacific Islander American Employee Association.
- A Cultural Byways brochure and website were launched in the fall of 2013 featuring the Oregon Scenic Byways creating a new partnership with the Oregon Arts Commission, Oregon Cultural Trust, Jefferson County Cultural Coalition, and Crook County Cultural Coalition. It also renewed and strengthened its existing partnership with Arts Central, Deschutes Cultural Coalition, The Museum at Warm Springs, and Central Oregon Visitors Association.

Scenic Byway Partners such as Central Oregon Visitors Association, Visit Bend, all the Central Oregon Chambers of Commerce, to name just a few, are actively engaged in supporting and marketing the Cascade Lakes and creating stewardship opportunities to protect the Byway's intrinsic values for both residents and visitors. One of the most effective ways to accomplish this has been through the creation and widespread distribution of the colorful and enticing Cascade Lakes Scenic Byway Brochure. Featuring whimsical artwork by local artist Dennis McGregor and a special "Tour of Interpretive Sites," this light-hearted brochure invites Byway travelers, especially families and children, to see and hear what nature has to offer, a scenic feast for the senses.

New Scenic Byway Partners added in 2014-15 were Jefferson County Cultural Coalition, Crook County Cultural Coalition, Washanaksha Cultural Coalition, Trout Unlimited, and the local Haiku Highway group, One Breath Poets.





Chapter II: GOALS, OBJECTIVES, STRATEGIES AND COMMUNITY VISION ACTIONS

Scenic Byway Goals, Objectives, and Strategies

The goals and objectives will set and give overall direction for how the Byway's intrinsic qualities are managed and protected. The strategies describe how these goals and objectives will be accomplished.

- **Preserve the Scenic Byway as a major attraction in the Pacific Northwest.**

Strategy 1: Sustain a vision for the Byway and its surrounding environment by enhancing and maintaining the image, identity, and integrity of the Byway.

Strategy 2: Protect and preserve the Byway's intrinsic scenic, natural, and recreational qualities through collaborative partnerships that include input and support from the economic, environmental, and recreation communities.

Strategy 3: Incorporate the Bend 2030 Community Vision and Action Plan by accomplishing Well Planned City Action Item 7.1 for Multi-Modal Connectivity, Strong Community Action Item 8.1 for Forest Stewardship and Conservation Education through the National Scenic Byways Program and the National Forest Foundation, and Creative Learning Culture Action Item 10.6 for Cultural Tourism. (See Byway Community Group and Community Vision Actions - p.13)

Strategy 4: Apply a Complete Streets concept to the Byway that creates hubs for trail connectivity and multi-modal transit opportunities.

- **Provide conservation education and recreation information at key locations on the Scenic Byway.**

Strategy 5: Provide Byway travelers with high-quality information, interpretive services, and interaction with Forest Service staff and volunteers.

Strategy 6: Create an action plan for interpretive facilities at key locations.

Strategy 7: Reach a wider, more diverse audience by utilizing the internet and introducing current and changing technologies.

- **Provide a quality experience for all Byway travelers and create awareness of the area's highly valued scenic, natural, and recreational qualities.**

Strategy 8: Provide Byway travelers with a sense of arrival and orientation at the gateways to the Deschutes National Forest through Byway facilities, interpretive sites and trailheads, a comprehensive sign plan, and design guidelines.





Strategy 9: Incorporate universal design for accessibility as an integral part of the design development of interpretive sites.

Strategy 10: Integrate the Byway's interpretive theme with a connective visual design that reflects the character of the Deschutes National Forest's landscape, culture, and communities, and is consistent with the Forest Service's Built Environment Image Guide.

- **Preserve scenic views.**

Strategy 11: Require Visual Impact Assessments for new communication towers, infrastructure, or highway improvements to meet Scenic Integrity Levels of the Scenery Management System.

Strategy 12: Enhance scenic views to landscape features through opportunities to open and selectively thin dense areas and create visual diversity.

Strategy 13: Maintain and protect the Byway travelers visual and sensory experience throughout the Cascade Lakes area.

- **Provide a connection with the culture and heritage of the area's indigenous people through interpretation and cultural tourism events on the Byway.**

Strategy 14: Tell the story of the connection to the ancestral lands along the Byway with the tribal communities in Central Oregon.

Strategy 15: Develop and nurture partnerships with the tribal communities of Central Oregon in order to create more awareness for their history and heritage in these lands.

Strategy 16: Support public outreach, community connections, and history of the red road through cultural tourism events, educational material, and heritage celebrations on the Byway.

- **Enhance the livability and economic vitality of gateway communities in Central Oregon through strategic partnerships.**

Strategy 17: Develop and maintain partnerships that foster collaboration between the Deschutes National Forest, Federal Highway Administration, Oregon Department of Transportation, City of Bend, Central Oregon gateway communities, and organizations.

Strategy 18: Work with economic and tourism agencies, such as Central Oregon Visitors Association and Visit Bend, to distribute appropriate travel and recreation information to visitors.

Strategy 19: Sustain a Cascade Lakes Scenic Byway Community Group with Byway training





for skills in creating partnerships, marketing, funding, visibility, education, volunteer outreach, and representation from gateway communities.

- **Seek a balance between finding economic opportunities for tourism and recreation, preventing climate change and promoting sustainable recreation, and protecting resources through conservation education and stewardship.**

Strategy 20: Promote low-impact behaviors at sensitive sites and riparian areas through positive messages and storylines to highlight the interconnections between all of the resources within the Cascade Lakes Watershed and ecosystem.

Strategy 21: Treat the Corridor Management and Interpretive Plan as a living document by continually engaging the community to protect resources and promote respectful recreation.

Strategy 22: Encourage forest stewardship through volunteerism and community partnerships.

Strategy 23: Develop a long-term funding strategy that utilizes existing and potential partnerships with tourism agencies and recreation groups, local government, and private businesses.

Byway Community Group and Community Vision Actions

Connecting with the community is an important way to gain active support for the Byway vision and to protect and preserve its intrinsic qualities. Formation of a Byway Community Group and incorporation of the Bend 2030 Community Vision and Action Plan into the Corridor Management and Interpretive Plan have been key steps.

The Byway Community Group was formed to provide innovative ideas for partnerships, marketing, funding, visibility, education, and community support for the Deschutes National Scenic Byways Program. Valuable skills provided by this group include communication, project management, marketing, strategic planning, community visioning, facilitation, mediation, partnership development, collaboration, and consensus building.

This group provided review of the new Byway brochure, interpretive signs, and Corridor Management and Interpretive Plan. It has also played a major role in engaging the community, inviting comments through a SurveyMonkey questionnaire, and hosting the first-ever Byway open house. In order to sustain this Byway organization, training was possible through a grant from FHWA to attend a National Scenic Byways conference and a State Workshop. The group meets regularly several times during the year and has provided networking and collaborative opportunities and created partnerships that will continue to enhance the Byway and benefit Byway communities, the gateways to our public lands.





The following Bend 2030 Community Vision and Action Plan items will be accomplished through future collaborative Byway partnerships:

Well Planned City Action Item 7.1 - Modal Connectivity Plan. Create a modal connectivity plan or Transportation System Plan (TSP) overlay utilizing the City's bus route plan, bicycle and pedestrian plan, trail plan and existing park and ride facilities. Identify key locations that serve as the primary interface between transportation modes and infrastructure improvements or facility needs that would enhance the use of these modal "hubs." Indicate modal hubs that are strategically located for interfacing with a Regional Public Transportation system (including the potential for both regional bus and light rail systems).

Strong Community Action Item 8.1 - Forest stewardship and conservation education through the National Scenic Byways Program and the National Forest Foundation. Practice principals that are aligned with the National Forest Foundation and its community-based programs that promote the health and public enjoyment of the Deschutes National Forest. Bring the community together to work on solutions to support community-based forestry, recreation, wildlife habitat, and watershed restoration of the Forest's resources through conservation education and partnerships and the National Scenic Byways Program. Engage communities in dialogue-based collaborative processes to find common ground and develop proactive solutions.

Creative Learning Culture Action Item 10.6 - Develop and launch a Cultural Tourism Initiative which raises awareness for the art events and cultural amenities that Bend has to offer. The Deschutes National Forest Scenic Byways Program has been actively promoting cultural tourism events with community partners.



Cultural tourism event on Cascade Lakes Scenic Byway.

The following lists are actions taken to sustain the Byway, complete the 2010-2014 Project Priority List, and to update a 2015-2020 Project Priority List.

2006-2014:

- Created a volunteer Byway community group in 2006 to support and sustain the Byway.
- Celebrated the 10th anniversary of the Byway's national designation in 2008 at the historic Elk Lake Guard Station.





- Partnered with Arts Central and Visit Bend on a Cultural Tourism Initiative for Central Oregon. Wrote a feature story, "Cultural Tourism in Central Oregon": published Spring 2008 in *Northwest Passages* (the regional publication for the National Association for Interpretation); published in the 2008 November/December issue of *Vistas* (the national publication for the National Scenic Byways Program); and, published in the Spring 2008 issue of *Cultural Heritage Tourism News* (a national online publication).
- Distributed a series of questionnaires in the summer of 2008 and fall/winter of 2009 asking Byway travelers and recreation visitors for their comments on conservation education, interpretation, and information facilities and sites on the Byway.
- Attended National Scenic Byway Conference in 2009 to provide training to Byway community volunteer group and to sustain the Byway organization.
- Designed and distributed a new Byway brochure in 2009 with collaborative input from almost 20 Byway partners.
- Held a Scenic Byway Open House in 2009 and invited the community to offer their ideas and comments for conservation education, interpretation, and existing and proposed facility projects on the Byway.
- Created a media blitz for the Byway and the Open House with a front-page story in *The Bend Bulletin*, TV interviews and coverage by KOHD and KBNZ, and a SurveyMonkey questionnaire with over 100 responses.
- Featured the Byway in an article, "Scenic Byways and Community Connections," which described the 2009 Scenic Byway Open House, published in the Spring 2010 issue of *Northwest Passages*, a regional publication for the National Association for Interpretation.
- Featured the Byway in an article, "Rainy Day Byway Partnerships," which described the Byway and its long-term community partnerships, published in the May/June 2010 issue of *Vistas*, a national publication for America's Byways Resource Center and the National Scenic Byways Program.
- Invited the community to the first "Haiku Highway Interpretive Writing Workshop," a cultural tourism event held on July 29, 2010, at the historic Elk Lake Guard Station on Cascade Lakes Scenic Byway.
- Held a second "Vanishing Point Interpretive Writing Workshop" at Osprey Point on August 26, 2011, to bring fresh views as well as involvement from the community to an existing interpretive site.





- Sponsored and hosted exhibit, “Celilo Falls,” a Scenic Byway cultural tourism event in partnership with The Museum at Warm Springs, Arts Central, Central Oregon Community College, Bend 2030, and Deschutes Cultural Coalition, at the Arts Central Resource and Education Center during the months of January to March 2011.
- Attended National Scenic Byway Conference in 2011 to provide training to Byway community, volunteer groups, and sustain Cascade Lakes Scenic Byway community organization.
- Requested and received \$15,000 in HTFB funds (FHWA) in 2011 from the Forest Service’s Washington Office and Regional Office for the design and fabrication of five interpretive signs for three interpretive viewpoints – Lava Lakes Wayside Fen, Elk Lake Viewpoint #2, and Devils Lake Wayside along the Cascade Lakes Scenic Byway
- Requested and received \$8,000 in HTFB funds (FHWA) in 2011 from the Forest Service’s Washington Office and Regional Office to fund interpretive sign writing and art direction and to fund a Bend/Fort Rock District team to write an interpretive plan for the Welcome Station.
- In October 2011, provided a National Scenic Byways Program Webinar on “Strategies for Community Involvement.”
- In September 2013, held the fourth in the free to the public Haiku Highway Writing Workshop led by award-winning writers Kathy Bowman and Susan Whitney on the Cascade Lakes Scenic Byway with support from “One Breath Poets” the local Bend chapter of haiku poets and HAPA EA, the Forest Service cultural awareness group.
- In September 2013, A Cultural Byways brochure and website were launched creating a new partnership between Oregon Scenic Byways and the Oregon Arts commission, Oregon Cultural Trust, Jefferson County Cultural Coalition, and Crook County Cultural Coalition.
- In September 2014, held the fifth free to the public Haiku Highway Writing Workshop, once again led by award-winning writers Kathy Bowman and Susan Whitney at historic Fall River Guard Station and Quinn River and Osprey Point Interpretive Site on the Cascade Lakes Scenic Byway with support again from One Breath Poets and HAPA EA for a Scenic Byway cultural tourism event. The result was One Breath Poets publishing its first ever book of Haiku poetry.
- In October 2014, the Welcome Station groundbreaking finally occurred.
- In March 2016, the Welcome Station ribbon-cutting and opening celebration happened.





Interpretive Site Project Priority List: 2010-2014

Based upon community input, a list of enhancement priorities was developed for 2010-2014. Community ideas were invited through a series of questionnaires (summers of 2008 and 2009), a SurveyMonkey survey (late fall 2009), and an open house (late fall 2009). Results reflected a high demand for interpretation of geology, ecology, flora and fauna, and heritage and history at scenic viewpoints with interpretive signs for self-discovery along the Byway. The following list is to be used as a strategy for seeking partnership funding and grant opportunities for project development:

1. Scenic Byway Welcome Station – **Design work completed in 2014**
 - Site plan for visitor parking and recreation users.
 - Interpretive exhibits - indoor and outdoor.
 - General recreation information and tourism marketing material.

2. Awbrey Hall Burn Trailhead and Interpretive Site – **Planning completed in 2014**
 - Parking area for cars.
 - Interpretive sign stand installation.
 - Interpretive sign design and fabrication.

3. Little Lava Lake Interpretive Site – **Installation completed by YCC Crew in 2012**
 - Interpretive sign stand installation.
 - Interpretive sign design and fabrication (2 signs and duplicates).

4. Soda Creek Interpretive Site – **Site redesign and construction completed in 2014**
 - Site plan for relocated and redesigned site.
 - Site construction.

5. Devils Lake Wayside – **Installation completed by YCC Crew in 2012**
 - Interpretive sign stand installation.
 - Interpretive sign design and fabrication (2 signs and duplicates).

6. Sparks Meadow Wayside – **Installation completed by YCC Crew in 2012**
 - Interpretive sign stand installation.
 - Interpretive sign design and fabrication (2 signs and duplicates).

7. Sparks Lake Boat Ramp – **Installation completed by YCC Crew in 2012**
 - Interpretive sign stand installation.
 - Interpretive sign design and fabrication (2 signs and duplicates).





8. Wayside Fen – **Installation completed by YCC Crew in 2013**
 - Site plan for wayside and interpretive signs and stand.
 - Interpretive sign design and fabrication (2 signs and duplicates).
 - Wayside grading and paving and interpretive sign stand installation.
9. Elk Lake Viewpoint #2 – **Installation completed by YCC Crew in 2013**
 - Interpretive sign stand installation.
 - Interpretive sign design and fabrication (2 signs and duplicates).
10. Quinn River and Osprey Point Interpretive Site – **Site visit and preliminary planning in 2014**
 - Site plan to redesign interpretive trails and signs.
 - Kiosk with interpretive signs and information.
 - Interpretive sign design and fabrication (6 signs and duplicates).
 - Interpretive sign stands (6 stands).
 - Kiosk and trails construction and stand installation.

Interpretive Site Project Priority List: 2015-2020

1. Scenic Byway Welcome Station – **Construction completed in 2016**
 - Interpretive exhibits – indoor and outdoor
 - General recreation information and tourism marketing material
 - Trail connections and assurance markers to existing trails
2. Awbrey Burn Trailhead (Rimrock Trailhead) – **Construction completed in 2017**
 - Parking pod and trail connectors design
 - Interpretive sign and kiosk design
3. Quinn River and Osprey Point Interpretive Site – **Conceptual Site Design completed in 2015**
 - Conceptual site design and interpretive master plan
 - Interpretive sign and kiosk design
 - Heritage trail connection to Quinn River and Osprey Point Interpretive Trail
4. Ray Atkeson Memorial Interpretive Trail
 - Refinish and install log benches
 - Improve and re-install directional signs along trail
 - Lower accessible parking signs
 - Avoid sign pollution at entrance and consolidate signs
5. Devils Lake Trailhead
 - Add Cascadian-style kiosk with interpretive signs and trail information
 - Provide personal interpretation





6. Fall River Guard Station – Sign installation completed in 2015
 - Add poetry board for haiku workshops held annually in the fall
7. Deschutes Bridge Guard Station
 - Restore and rehabilitate facility for reuse
 - Add interpretive sign about history of Guard Station and Forest Guard
8. Crane Prairie Campground
 - Add interpretive signs describing lake, dams, wildlife and aquatics
 - Continue Ranger-led evening programs at Crane Prairie Amphitheatre
9. Davis Lake Flow/Wickiup Reservoir Arm
 - Add interpretive sign on geology of lava flow and cultural heritage of the area
 - Provide personal interpretation
10. Davis Lake
 - Add interpretive signs at campground on geology, wildlife habitat, fisheries, heritage
 - Provide personal interpretation of 2003 Davis Fire and restoration of area

Partnerships: Funding, Planning and Community Support

There are various sources of funding available to the Cascade Lakes National Scenic Byway. Most programs through the Department of Transportation and Federal Highway Administration solicit grant nominations on an annual basis. The Oregon Forest Highways Program solicits grant nominations once every four years. It is the only grant program that does not require matching funds, although partnership funding does provide a much more competitive application package. In recent years, the focus of the grant programs has changed and funds have been awarded to larger complex projects (greater than \$300,000), rather than smaller projects. Partnerships are an integral part of funding and the most successful projects to receive funding are those with multiple funding partnerships.

The following is a list of possible funding programs for Scenic Byway enhancements:

- Deschutes National Forest
- Regional Forester's Challenge Cost-Share Program
- Deschutes County, Klamath County, ODOT, City of Bend
- Oregon Department of Transportation
- Oregon Forest Highways Program
- Scenic Byway Enhancement Program
- Paul S. Sarbanes Transit Program
- Transportation Enhancements Program





Coordinating with land-use planning and highway improvement projects is another way of increasing funding opportunities for Scenic Byway enhancement projects. Integrating Scenic Byway planning with community visioning is a way to sustain community support for the Byway over the long-term.

The following planning processes have been or will be coordinated with the Byway:

- Corridor Management and Interpretive Plan Update
- Deschutes National Forest Land and Resource Management Plan
- Bend 2030 Community Vision and Action Plan
- Bend Metropolitan Planning Organization
- Framework for Sustainable Recreation – USFS
- Oregon Department of Transportation (ODOT) Transportation Planning
- Greenprint Plan for Deschutes County – The Trust for Public Lands
- Urban Growth Boundary Expansion for the City of Bend
- Deschutes County Comprehensive Plan
- Paul S. Sarbanes Transit Feasibility Study for Deschutes National Forest

Gaining community support is key to sustaining the Byway and the recreation areas it provides access to. As described in the Forest Service's *Framework for Sustainable Recreation (2010)*, "Community engagement is essential for creating a sustainable recreation program. The Forest Service has a role to serve as planners, facilitators, conveners, and collaborators, tapping the enormous energy and creativity of people in communities that care for and benefit from public lands, including both the private and public sectors. Strategic partnerships are vital to sustainable recreation experiences. Cultivating coalitions of recreation interest groups will help provide recreational experiences, service activities, and environmental education for youth and adults that promote fitness, appreciation of nature and history, and citizen stewardship."

The Cascade Lakes National Scenic Byway has gained support from many sectors of the community. These Byway partners represent recreation, business, tourism, the environment, culture, heritage and the arts, alternative modes of transportation, and conservation education. A major collaborative role for Byway partners is to protect Byway values and to market and promote Central Oregon communities that are gateways to scenic byways. An example of this collaboration was the redesign and ongoing distribution of a new brochure for Cascade Lakes Scenic Byway that provides Byway and recreation information for the Cascade Lakes area.

- Bend Chamber of Commerce
- Bend 2030 Community Vision
- La Pine Chamber of Commerce
- Sunriver Chamber of Commerce
- Redmond Chamber of Commerce
- Prineville Chamber of Commerce
- Madras Jefferson County Chamber of Commerce





- Sisters Chamber of Commerce
- North Klamath County Chamber of Commerce
- The Museum at Warm Springs
- Central Oregon Visitors Association
- Commute Options
- Mt. Bachelor Sports Education Foundation
- Arts Central
- The Environmental Center
- Visit Bend
- Wilderness Associates
- Discover Your Northwest
- Trout Unlimited
- Deschutes Cultural Coalition
- Jefferson County Cultural Coalition
- Crook County Cultural Coalition
- Washanaksha Cultural Coalition
- One Breath Poets







Chapter III: THEME, SUB-THEMES AND STORYLINES

Theme

An overarching central interpretive theme and supporting sub-themes were developed for the Cascade Lakes Scenic Byway. The purpose of these is to provide a thematic connection for all existing and potential interpretive opportunities along the Byway. The theme and sub-themes tell a collection of “stories” that show the interconnections between all of the resources within the Cascade Lakes Watershed and ecosystem. A theme is typically the “plot” to the interpretive story. It links all programs and media. Sub-themes further develop the central theme and provide a logical delineation into storylines. Storylines are the threads of the stories that are told through the interpretive media or program.

The importance and intent of the theme, sub-themes, and storylines is to provide the Byway traveler with a strong message of conservation and to present environmental information in a meaningful and thought-provoking way. The interpretive theme for the Byway is to:

Follow the journey of water as it flows through and nurtures the life patterns of this volcanic landscape.



Cascadian-style kiosk and interpretive sign at North Gateway Scenic Byway Viewpoint.

Sub-Themes and Storylines

Sub-themes are broader topics which relate to and support the central theme. They provide more specialized information and represent the different resources, such as geology, hydrology, wildlife, heritage, climate, vegetation, and ecology.





Storylines are specific details of events that provide a connection to a certain place or time. More description is given to create a visual image or to convey a certain message.

Storylines are developed in Chapter 4 for specific sites. The following sub-themes and resource topics have been developed for the Byway as a whole:

1) Geology and Hydrology

Many times in the past the Deschutes River has been blocked by ash or lava flows and forced to find another path either over or under its obstructed channel. The porous volcanic landscape acts as a sponge-like conduit, with much of the water flowing beneath the surface.

For tens of millions of years, the Cascade Range has been influenced by the subduction of oceanic plates off the coast of Oregon. This subduction provides the mechanics of heat and motion that have slowly built up the mountain range. The successive layering of lava flows and ash deposits, combined with the powerful erosional activity of glaciers and rivers during the last few million years, has resulted in the smooth topography of the eastern slopes of the Cascades, now dotted with volcanoes of various sizes.

Volcanoes dominate the landscape and have been erupting here for at least the last 45 million years, and there are no signs that volcanism will let up in the future. Eruptions have occurred in Central Oregon, on average, every 500 years, with the most recent eruption 1,300 years ago. Lava flows, cinder cones, pumice, and ash from these numerous past eruptions are visible all along the Byway. The USGS continues to monitor a growing bulge on the western side of South Sister, and future eruptions are a near certainty.

As one of the oldest members of this volcanic landscape, the Deschutes River has been a constant in this ever-changing landscape and has played an active role in creating the topography. The river begins as groundwater supplied by the snowmelt high in the Cascades and travels underground through fractures and lava tubes in the lava rocks. The river only begins its overland course near the midpoint of the Byway.

Many times in the past, the river has been blocked by ash or lava flows and forced to find another path, either over or under its obstructed channel. This porous volcanic landscape acts as a sponge-like conduit for an elaborate groundwater system, holding a tremendous volume of water that is released slowly and consistently.

Glaciers have also played an important role in shaping what we see along the Byway. During worldwide ice ages in the past 800,000 years, glaciers advanced and retreated several times in the Cascade Range. With each advance, glaciers cut deeply into the Cascades, leaving impressive canyons and hollowed-out volcanoes such as Broken Top. The most recent major advance culminated about 22,000 years ago: ice thickened to perhaps 2,000 feet along the Cascade crest and glaciers reached to within 7 miles of what is now Bend.





The Central Oregon Cascade Range peaks that presently sustain glaciers or permanent ice masses are, from north to south: Mount Jefferson, Three Fingered Jack, North Sister, Middle Sister, South Sister, and Broken Top. In addition, Mt. Washington, Mt. Bachelor, Diamond Peak, and Mt. Thielsen all had small glaciers that persisted until the end of the Little Ice Age in the early 20th century. The Three Sisters Wilderness Area is the most extensively glacierized region of the Central Oregon Cascade Range, with 17 named glaciers that presently cover about 7.5 square kilometers.

These geologic processes are constantly in motion, but to the casual observer are very static and unmoving. The lava flows, cinder cones, and layers of ash are like ancient clock hands frozen in time. They are the markers for the geologic history and give geologists clues into the history and age of this volcanic landscape. As these various rocks weather and decompose, they create soil, which provides nutrients for the plants and trees, as well as habitat for animals.

Resource Topics: Geomorphology, volcanism, erosion, plate tectonics, glacial activity, weathering, faulting, layers of volcanic rock, soils, hydrologic cycle, watershed view, watershed analysis, water quality, glaciers, spring snowmelt, river systems, groundwater flows, water storage, reservoirs, irrigation, percolation, weather patterns.

2) Forest Ecology and Vegetation

The patterns of vegetation along the Byway can be largely understood by the schedule and abundance of water availability. Differences in topography, elevation, slope aspect, and soil type result in a mosaic of vegetation and forest types.

The vegetation at any particular locality tends to reflect elevation, seasonal temperatures, water availability, topography, aspect, physical properties of soils, and recent disturbances (i.e., fire, insects, pathogens, and human management). Unique and sensitive plants and animals have evolved over time throughout the volcanic Cascades landscape. These species have developed in small pockets throughout the area in response to unique combinations of geologic features, microclimates, and water.

The vegetation of the area is dominated by coniferous forest, with the inclusion of non-forested patches dominated by shrubs and/or herbaceous plants. The sets of plant species occupying upland vs. riparian/wetland habitats are largely distinct. Several common forest types are conspicuous and strongly correlate with elevation, which in turn strongly influences seasonal temperatures and precipitation. With increasing elevation, forest stands dominated by ponderosa pine give way to stands of mixed conifers, followed by stands of lodgepole pine and then mountain hemlock. Local topography and slope aspect (direction the slope faces) often result in a mosaic of several forest types present in relatively close proximity to one another.

Shrubs, and especially herbaceous plants, account for much of the diversity of plant species. Shrubs may be conspicuous in forest openings that are created by disturbances, such as fire, wind-throw, insects/disease, and human managements. Shrubs may also be important components of non-forested plant communities with high water tables.





Forests on the east side of the Cascades have developed in response both to natural disturbances and to human activity. Insects and lightning-caused fires have always been natural processes in the forest. Trees killed by insects provide fuel for lightning-caused fires. Over time, insects and fire have created a wide variety of forest conditions. Our attempt to prevent large fires during the last century has often led to more uniform vegetation across large areas of the landscape.

Ultimately, the patterns of vegetation in the Byway area can be largely understood by the schedule and abundance of water availability. Perhaps the highest levels of species diversity can be found within the various types of meadows. Found at elevations ranging from the ponderosa pine forests up to the lightly forested or non-forested subalpine and alpine settings, these meadows, which may include a rich array of grasses, sedges, and wildflowers, are often associated with stream and lake edges, areas of seasonal water collection, and areas that are perennially wet due to groundwater emergence. Due to the area's special hydrogeology, numerous fens (peatlands) occur along the Byway. Fens, which are groundwater-dependent ecosystems, are home to many rare or uncommon plant species, including insectivorous plants.

Resource Topics: Plant communities, threatened and endangered species, subalpine and alpine communities, native vs. non-native species, fire ecology, insects and disease, old growth vs. climax communities, snags, keystone species, threatened ecosystems.

3) Forest/Resource Management

Water is one of the main determinants of forest type. From wildlife to fisheries, forest vegetation to human use, a myriad of social and resource concerns must be weighed for management considerations.

The forest along the Cascade Lakes Scenic Byway is mostly made up of ponderosa and lodgepole pine in the lower elevations, and mixed conifer (including fir, spruce, and hemlock) in the higher elevations, with water as one of the main determinants of forest type. With the development of the National Forest System, the Deschutes National Forest is now responsible for the wide array of management of resources found here. From wildlife to fisheries, forest vegetation to human use, a myriad of social and resource concerns must be weighed for management considerations.

Forest vegetation played a key role in the livelihood of Native Americans and European settlers, and still does in today's society. From providing food and shelter, to materials for homesteading and building a nation, to becoming the playground for tens of thousands of people annually, the forest along the Byway has provided much for many over hundreds of years.

Human activity can have a strong impact on vegetation. Recent forest management activities are evident throughout the Cascade Lakes area. Forest thinning has been done to mimic historic stand conditions, protect structures, and reduce the threat of wildfire. Prescribed fire and mowing are done both to prevent the destruction of unique plant and animal habitats and to enable natural fire to again occur





within historical sizes and intensities. Numerous restoration projects have addressed issues created by past management, overuse, and introduced species. Stream restoration projects have improved fishery habitat and water quality.

Resource Topics: Forest thinning, brush-mowing, prescribed fire, slash piles, Department of Corrections operations, stream restoration, noxious weeds, various wildlife, fisheries, human-use management.

4) Wildlife and Aquatics

The Cascade Lakes area has an array of habitats, ranging from rich wetlands to dry pumice plains. Each has a unique combination of geologic features, microclimates, and water.

There are many different species of wildlife that use this area, and each has its different habitat needs. The Cascade Lakes area has a rich array of habitats, each with a unique combination of geologic features, microclimates, and water. These habitats, ranging from rich wetlands to dry pumice plains, are important to many species, including those protected under the Endangered Species Act. The area is a critical stopover and feeding ground for thousands of resident and Neotropical migratory birds. And a large number of different animals, including the threatened northern spotted owl, live here.

Different forest conditions provide different habitat for different species. Some bird species, such as white-headed woodpeckers and northern spotted owls, use old-growth forests. Northern goshawks, Cooper's hawks, and sharp-shinned hawks, are agile flyers who use dense forests. Several woodpeckers benefit from stand-replacement fires. Black-backed woodpeckers are among the first to arrive after a stand-replacement fire. A few years later, they are replaced by three-toed woodpeckers. And later yet, after the snags have become soft from decomposition, Lewis' woodpeckers may use the area.

Other species prefer the many lakes, rivers, and streams along the Byway. Wickiup, Crane Prairie, and Davis Lake reservoirs are popular fishing spots for people, and also for wildlife. Bald eagles and osprey are especially common along these lakes since their diets are composed almost exclusively of fish.

A few other animals are associated with the alpine and subalpine areas found near the summits of some of these volcanoes. The pika is famous for its sensitivity to heat; it can die after brief exposure to temperatures above 78 degrees F, and is therefore only found at cooler elevations. These subalpine and alpine species are especially vulnerable to global warming—as populations continue to move higher up the mountains, eventually they may get to the top and have nowhere else to go.

Aquatic habitats include shallow, marshy lakes, deep cold water lakes, and cool, clear, spring-fed streams. These provide habitat for various native fish and other aquatic organisms. The aquatic environment has been altered by humans through the creation of water-storing reservoirs and the introduction of non-native fish species. These alterations contributed to the extirpation of the Upper Deschutes population of native bull trout, a threatened species.





Wildlife can be affected by humans in a variety of ways. We can disturb them directly, or by altering their habitat. Habitat alteration has made the northern spotted owl an endangered species. Other times, individuals are hurt—feeding wildlife can make them dependent upon us or result in malnutrition. Bears that become accustomed to people can become dangerous—unfortunately, they are the ones most likely to be hurt as a result. Mid-latitude habitats as in the Cascade Lakes area are the best habitat for most species and that is where roads and recreation are most concentrated with roads and off-trail activities being the greatest disturbances.

Resource Topics: Fish and wildlife species diversity, migratory wildlife cycles, threatened and endangered species, lake ecology, native and non-native species interactions, fish and wildlife habitat enhancement and restoration, riparian areas, diversity of wildlife habitats, unique habitats, including caves and lava flows, amphibians, Oregon spotted frog, seasonal west-east movements of deer and elk.

5) History and Cultural Heritage

Rivers, streams, and lava flows provided travel corridors and were sources of food, water, and tools. The indigenous people from this area now live on the Warm Springs Indian Reservation and have a strong connection to Celilo Falls on the Columbia River.

The Cascade Lakes has many sites demonstrating the connection of prehistoric/historic humans to the landscape's geology, hydrology, and cultural ecology. Sites along the Byway with interesting cultural history include the stock drives/pens at Sparks Lake, Billy Quinn grave at Quinn River, and astronaut training site and Devils Pass rock that was left on the moon. Historic buildings include a USGS cabin near Sparks Lake, the Elk Lake Guard Station, which is now on the National Register, Fall River Guard Station cabin rental (historic Cascadian-style, CCC-era cabin), and Deschutes Bridge Guard Station. Prehistoric use included using wooden canoes in the high lakes and the creation of rock art at the Devils Pass lava flow.

Humans were affected by past volcanic eruptions, including the eruptions of Mt. Mazama (7000 BP) and South Sister (Devils Pass flow). Some of these eruptions left lava flows which humans have used for travel, caches, hunting blinds, vision quests, and rock art (spiritual and religious). These eruptions have also shaped the flow of water through the landscape. Rivers, streams, and lava flows provided travel corridors and were sources of food, water, and tools.

A variety of prehistoric uses, and more recent industrial, agricultural, and recreational uses, have left their mark upon the landscape. The early 20th century was the first time that the “masses” could recreate, and the Forest Service provided an outlet. Old cabins and guard stations can be seen along the Byway. Numerous movies were filmed along the Byway.

The Passport in Time program has resulted in a rise of volunteerism, with organized volunteer opportunities throughout the nation. An ongoing opportunity on the Deschutes is the Historic Elk Lake Guard Station Staffing Project. It is important for the public to help support the protection and preservation of the many sites along the Cascade Lakes Scenic Byway, and Passport in Time projects





offer visitors the opportunity to become involved with the preservation and study of some of the sites along the Byway.

Resource Topics: Transportation networks, obsidian trade patterns, historic use and structures, historical figures, historic recreational use, including skiing.

6) Sustainable Recreation

People also follow the flow of water; recreation is often along streams, rivers, and lakes. Promoting healthy lifestyles and community involvement and partnerships are ways to create and strengthen partnerships for healthy lands and healthy people.

The area along the Byway is spectacularly beautiful and is heavily used for recreation. This recreational use also has an impact on the landscape. With population and visitation increases, community involvement and partnerships are the key to future livability of rural communities and sustainability of National Forest lands. A balance is needed between promoting recreation and tourism and protecting the ecological and social systems through respectful recreation, multi-modal alternatives for transportation, and conservation education.

This is a new era for the Forest Service with its launch of a new framework for sustainable recreation with a greater focus on partnerships and community collaboration. A guiding principle of this framework is to connect people to natural and cultural heritage and to use recreation as a portal for understanding and caring for natural resources and public lands. Promoting healthy lifestyles and engaging communities is a way to strengthen and create a balance between healthy lands and people. The National Visitor Use Monitoring (NVUM) survey results support recreation as the top attraction to the Deschutes National Forest. Recreation and tourism are interconnected and dependent upon each other for economic vitality of Central Oregon communities.

Recreation facilities have been created to improve visitor experiences and aesthetics, and to prevent misuse. Numerous trailheads along the Byway provide access to the Three Sisters Wilderness, an area with even stronger regulations to protect it. The Wilderness Act states that “a wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and community of life are untrammelled by man, where man himself is a visitor who does not remain.” Leave No Trace Ethics are encouraged and use restrictions have been imposed to protect the natural beauty of the area.

Resource Topics: Current and future trends in recreation, changing demographics, commute options and transportation partnerships, outdoor recreation and tourism partnerships, promotion of citizen stewardship and education through outdoor recreation groups.





7) Climate Change

Water availability affects humans, plants, wildlife, and many natural processes. Climate change is likely to impact the seasonality and availability of water.

Climate change is likely to impact the amount of rain and snow and the timing and speed of spring melt-off. Changes in water availability affect humans, plants, and wildlife, and many natural processes may be accentuated by climate change. Warmer temperatures and reduced water availability weaken the resistance of trees to insects and disease.

Mountain ecosystems are especially sensitive to climate change. Climate in mountains can vary considerably over a small area due to their complex terrains. As you move up in elevation, you can clearly see different ecosystems—high desert near the start of the Byway, moving up through different types of forests, with alpine areas at the tops of the mountains. Swings of wet versus dry ten-year periods are predicted, in addition to the warmer temperatures, which would cause lower-elevation habitats to migrate upward. Those already at the top would have nowhere higher to move up to, and we could end up losing them altogether.

There are ongoing efforts to protect the ecosystem through restoration efforts, scientific research, management activities, and sustainable land stewardship. Our National Forests can play an important role in reducing the effects of climate change. Our forests function as carbon sinks, absorbing more carbon than they release, and thereby reducing the buildup of greenhouse gases. Much of this carbon is actually stored in the soils, as well as in the trees, and managing the forests to maintain healthy, diverse, and functional ecosystems is important for long-term carbon storage.

Resource Topics: Carbon storage in forests, changing weather patterns, effects on vegetation patterns, forest management, and wildlife, buffers against effects.

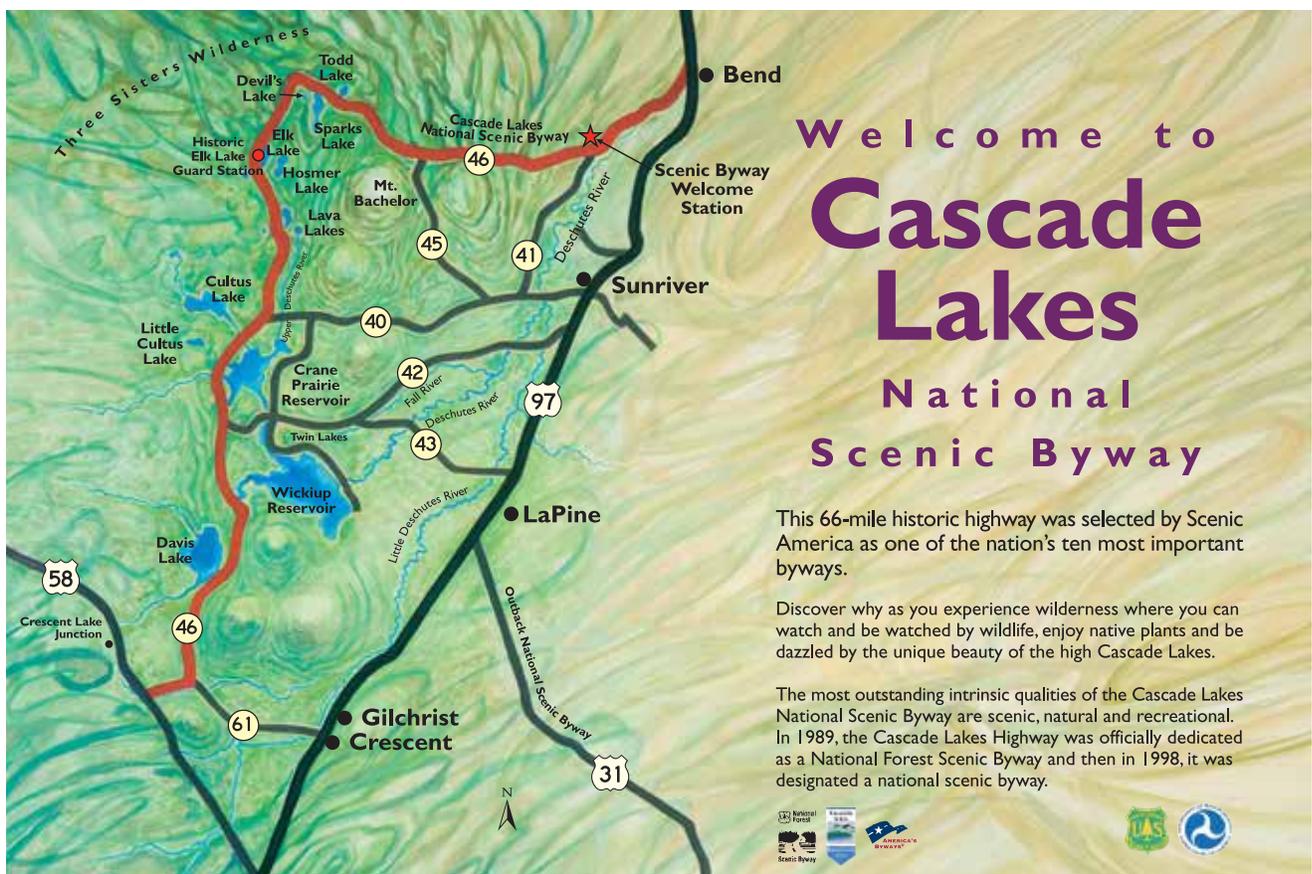




Chapter IV: INTERPRETIVE SITE DESIGN GUIDELINES

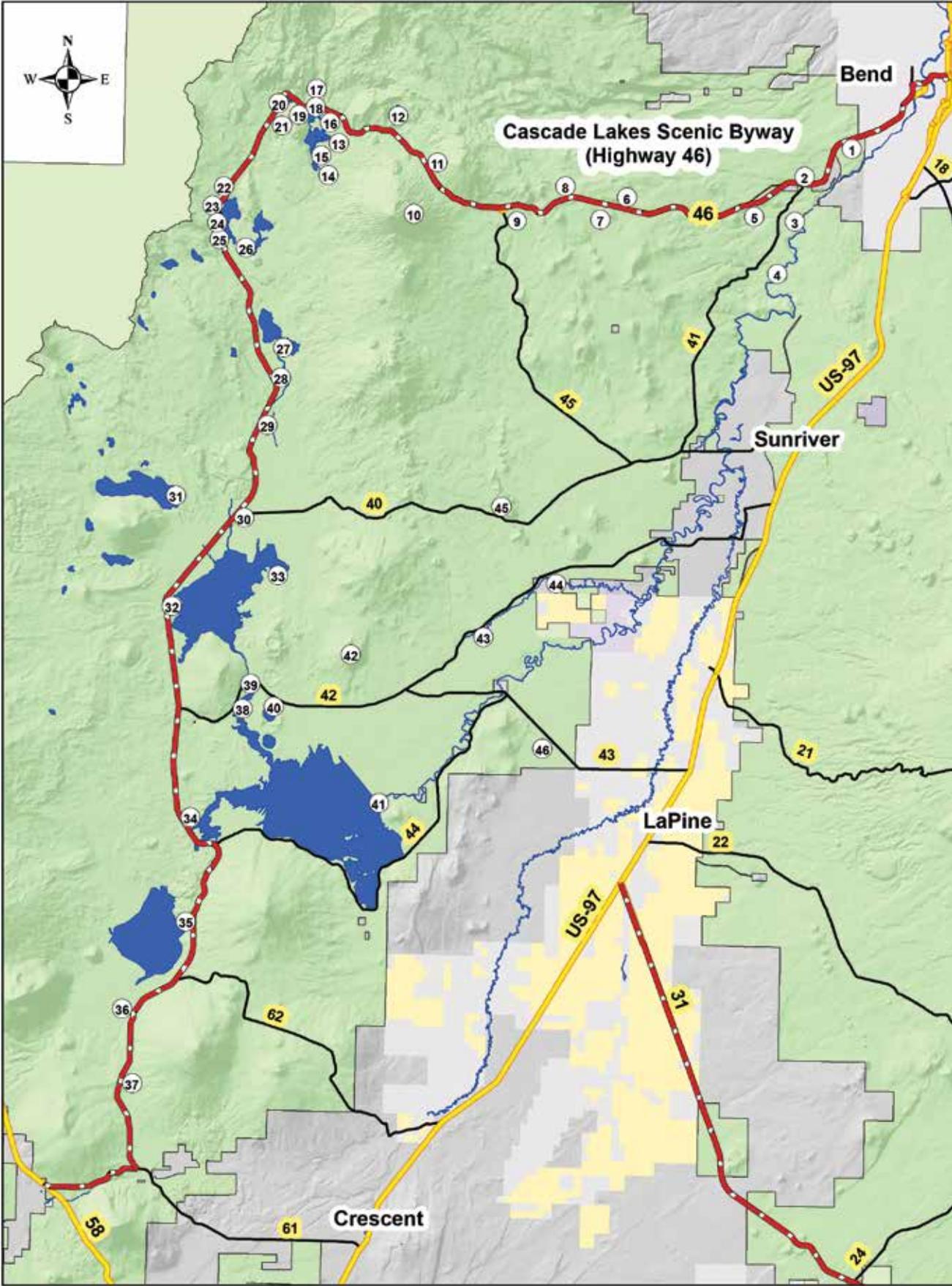
The beauty of the Cascade Lakes National Scenic Byway lies in its readily available access to the area's scenic, natural, and recreational resources. The Byway traveler has golden opportunities to become engaged with the outdoors. A critical section of the Corridor Management and Interpretive Plan is an inventory and resource assessment of the existing and future interpretive sites along the Byway. How do we meet the expressed needs of current and future visitors for conservation education and interpretation along the Byway? How do we best deliver messages to balance recreation and protect the forest ecosystem? How do we address multi-modal forms of transportation to better connect communities to these public lands?

This chapter focuses on interpretive site design guidelines and storylines that best interpret and describe the unique character of each of these sites. The goal is to give the Byway traveler a memorable experience framed by incredible views seen from the Tour of Interpretive Sites on the Cascade Lakes National Scenic Byway.



Cascade Lakes National Scenic Byway welcome and orientation. This sign has two locations: the North Gateway Scenic Byway Viewpoint close to Bend and the South Gateway Scenic Byway Interpretive Site close to Road 61 and Highway 58. The new Cascade Lakes Welcome Station is shown here located at the junction with Forest Road 41.





Cascade Lakes National Scenic Byway

Current and Future Interpretive Sites

1. Awbrey Hall Burn Area (Rimrock Trailhead)
2. Cascade Lakes Welcome Station
3. Deschutes River Trail
4. Ryan Ranch Wetland Restoration Site
5. North Gateway Scenic Byway Viewpoint
6. Virginia Meissner Sno-Park
7. Wanoga Day-Use Area
8. Swampy Lakes Sno-Park / Trailhead
9. Kapka Butte Sno-Park
10. Mt. Bachelor Ski and Summer Resort
11. Dutchman Flat Area
12. Todd Lake
13. Soda Creek Interpretive Site
14. Ray Atkeson Memorial Trail at Sparks Lake
15. Sparks Lake Boat Ramp
16. Sparks Meadow Wayside
17. Green Lakes Trailhead
18. Ray Atkeson Memorial Photopoint Wayside
19. Devils Garden
20. Devils Lake Wayside
21. Devils Lake Trailhead
22. Elk Lake Guard Station
23. Elk Lake Resort and Campgrounds
24. Elk Lake Viewpoint #1
25. Elk Lake Viewpoint #2
26. Hosmer Lake
27. Little Lava Lake: Deschutes River Headwaters
28. Wayside Fen
29. Deschutes River Corridor
30. Deschutes Bridge Historic Guard Station
31. Cultus Lake Resort and Campground
32. Quinn River & Osprey Point Interpretive Site
33. Crane Prairie Campground
34. Davis Flow / Wickiup Reservoir Arm
35. Davis Lake
36. Davis Lake Wayside
37. South Gateway Scenic Byway Interpretive Site
38. Browns Creek Spawning Site
39. Browns Mountain Crossing
40. Twin Lake Maars and Wickiup North Arm
41. Wickiup Dam
42. Round Mountain Lookout
43. Fall River Guard Station
44. Fall River Fish Hatchery
45. Wake Butte
46. Turn-of-the-Century Forest





1. Awbrey Hall Burn Area (Rimrock Trailhead)

Proposed future improvements

Site Description: At the edge of the urban boundary, the Cascade Lakes Scenic Byway leaves Bend and travels through an area heavily burned during the 1990 Awbrey Hall Fire. Along this stretch of road are several resorts, golf courses, and several popular and informal trailheads with very limited parking. Many hikers, bikers, runners, and dog-walkers park on a small dirt road turnoff and walk or ride along dirt roads to the lower stretches of the Deschutes River Trail.

In 2012, a grant for \$1,067,900 was received from the National Scenic Byways Program of the Federal Highway Administration for planning, design and construction for a trailhead and interpretive features at this site in addition to a multi-use path, undercrossing, and trail connectors to existing trails throughout the area. The purpose is to provide a multi-modal connection to the Welcome Station.

Current Interpretation: There are currently no interpretive services at this site.

Interpretive Site Design Guidelines: Provide a designated parking area. Add Cascadian-style kiosk with interpretive signs and trail information. Create dog waste stations at designated off-leash areas.

Storylines: In 1990, the Awbrey Hall Fire burned approximately 3,000 acres, jumping the Byway and the Deschutes River. This stand-replacement fire was arson-caused and burned 22 homes. It also created some unique habitat for wildfire-dependent species of wildlife. This area is used by mule deer as winter range.

Forest Ecology and Vegetation

- a) Fire ecology.
- b) Forest succession.

Wildlife and Aquatics

- a) A variety of woodpeckers can be seen along the Byway, but often in different types of forests. Some species, such as white-headed woodpeckers, are often seen in old-growth forests, while others prefer recent stand-replacement fires. After a stand-replacement fire, black-backed woodpeckers are among the first to arrive. After a few years, they are replaced by three-toed woodpeckers. And later yet, after the snags have become soft from decomposition, Lewis' woodpeckers may use the area. Even though the Awbrey Hall Fire burned in 1990, Lewis' woodpeckers are still a common sighting along this stretch of the Byway.
- b) Lewis' woodpecker life history.
- c) Mule deer life history.
- d) Impacts of suburban development, recreation, dogs and roads on wildlife.





2. Scenic Byway Welcome Station

Proposed future improvements

Site Description: The Cascade Lakes Welcome Station is located on the north side of the Cascade Lakes Scenic Byway (Highway 46) at the junction with Forest Road 41, which accesses the Deschutes River recreation sites and Sunriver. The site is dominated by recently thinned blackbark ponderosa pine. The topography of the site is fairly level and there are no dramatic features visible from the road. Views from the site are to the highway or across the highway to Forest Road 41.

In 2012, a grant for \$1,067,900 was received from the National Scenic Byways Program of the Federal Highway Administration for planning, design and construction of a trailhead, interpretive features, a multi-use path, undercrossing and trail connectors to existing trails throughout the area. The purpose is to provide a multi-modal connection to the Welcome Station from Bend.



Current Interpretation: In 2015, Phase III Construction occurred. In 2016, the Welcome Station opened for its first season.

Interpretive Site Design Guidelines: Native building materials and native landscape plantings were used in the construction of the Cascadian rustic-style Scenic Byway Welcome Station, with site amenities such as low lava rock walls and outdoor seating areas to welcome visitors. An outdoor education space and kiosk set the stage for engaging the Byway traveler to interact with nature by taking the Tour of Interpretive Sites on the Byway.



Groundbreaking Day – October 20, 2014

This project provides a hub for multi-modal transportation such as biking, hiking, Central Oregon bus transit, carpooling, and an interconnected trails system linking several communities. It fulfills Byway traveler needs for orientation, general recreation and Byway information, conservation education, and cultural tourism events, which create strong connections to the community.





Storylines:

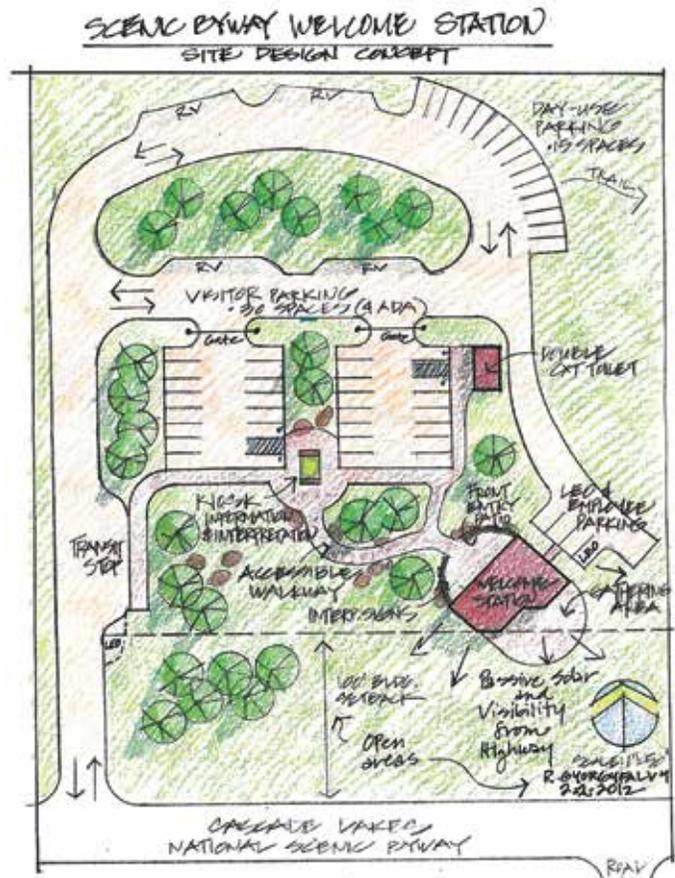
Visitor Orientation

The Welcome Station serves as a starting point for many visitors as they begin their trip along the Byway. It is an opportunity to provide basic area information as well as to encourage conservation and sustainable use.

- Maps.
- Logistical information, including amenities.
- Trails and recreation information.

History and Cultural Heritage

- Historical use of the Byway area.
- Rivers, streams, and lava flows provided travel corridors as well as food, water, stone, wood, and plant resources for human use.
- The early 20th century was the first time that the “masses” could recreate, and the Forest Service provided an outlet.
- A variety of prehistoric uses, and more recent industrial, agricultural, and recreational uses, have left their mark upon the landscape.
- Films made along the Byway—including “Rooster Cogburn” and “St. Helens.”



Geology and Hydrology

- The Byway climbs up to Mt. Bachelor, and then follows the journey of water through the Cascades. High volcanic peaks and scenic lakes are sprinkled across the landscape, with regular eruptions having changed the path of water over time.
- Glaciers played a significant role shaping the landscape that we see today. Sizable alpine glaciers existed along the crest of the Cascades during recurring ice age events. They carved mountain landforms and left behind moraine and outwash deposits. The rock quarry on private land near the Road 41/Century Drive intersection is a source of rounded stones that were deposited as outwash at the mouth of a glacial stream that once flowed down through the deep swale that crossed under the highway at the guardrail just south of the intersection. These deposits can be seen in the road cut on Road 41 near the quarry entrance.



Forest Ecology and Vegetation

- a) Ponderosa pine ecology.
- b) Fire return intervals.
- c) Shrubs, and especially herbaceous plants, account for much of the diversity of plant species in the Byway area. Shrubs may be conspicuous in forest openings created by disturbances such as fire, wind-throw, insects/disease, and human managements. Shrubs may also be important components of non-forested plant communities with high water tables.

Forest/Resource Management

- a) The proposed site is within blackbark ponderosa pine, which has recently been thinned. Forest and fire ecology—forest thinning to maintain healthy stand conditions and reduce the threat of wildfire.
- b) The mowing of brush and the use of prescribed fire both to prevent the destruction of unique plant and animal habitats and to enable natural fire to again occur within historical sizes and intensities.
- c) The historic and natural role of fire and the use of prescribed fire as a management tool on the landscape.
- d) Conservation ethics.

Wildlife and Aquatics

- a) While traveling the Byway, some species are frequently seen. Others are present, but usually avoid being seen.
- b) Frequently seen wildlife along the Byway.
- c) Cryptic wildlife—signs, habitat, and life histories of hard to see wildlife.

3. Deschutes River Trail

Proposed future improvements

Site Description: The Deschutes River Trail runs through pine forests and lava flows along the varying placid and tumultuous Deschutes River. This trail is reached from multiple trailheads, including Meadow, Lava Island, Big Eddy, Aspen, Dillon, Slough, and Benham West. This is a heavily used trail, easily accessed year-round from Bend. See also: Ryan Ranch Wetland Restoration Site.

Current Interpretation: Interpretive signs are spread out along much of the length of the trail, with topics including local history, archaeology, fisheries, wildlife, and geology. Some signs are newer and in good condition. Others are dated and need replacement. Half-day river-rafting trips offered through local outfitters typically include some interpretation.

Interpretive Site Design Guidelines: Continued maintenance and possible replacement of dated and/or damaged signs. Additional interpretation could address river and wildlife conservation. Provide information and support to outfitters.





Storylines:

Visitor Orientation

- a) Trail maps and information. Some existing signs.

Geology and Hydrology

- a) The Deschutes River has been caught between the violence of two volcanic forces—the Cascades and Newberry Volcano. Existing sign.
- b) Layers of volcanic eruptions eroded by the Deschutes River. Existing sign.
- c) Lava Island formed by Deschutes River channel. Existing sign.



A hiker reads the interpretive sign at Lava Island Rockshelter.

History and Cultural Heritage

- a) Lava Island Falls archaeological site. Two existing signs.
- b) History of European trapping and exploration in Central Oregon. In 1835, Nathaniel Wyeth became the first Euro-American to “shoot the rapids” on this river. He came west to pioneer in business, but went home with little more than the shirt on his back. Existing sign.
- c) Irrigation flume history. Existing sign.
- d) Road maps of the past—lava flows, mountain ranges, rivers, and vegetation. Existing sign.

Wildlife and Aquatics

A wide variety of wildlife species is found along the river. While some species use a variety of habitats, others are limited to areas along rivers, lakes, and streams.

- a) Calm waters and great blue heron life history. Existing sign.
- b) Bull trout and turn-of-the-century fish tales. In the early 1900s, giant bull trout filled the river, but have been replaced by rainbows and browns. The aquatic environment has been altered by humans through the creation of water-storing reservoirs and the introduction of non-native fish species. These alterations contributed to the extirpation of the Upper Deschutes population of native bull trout, a threatened species. Existing sign.
- c) Otters, mink, and beaver are found only along water.
- d) Even if you don't see wildlife, you can see their signs. Signs can include tracks and trails, evidence of feeding such as piles of feathers or chew marks on trees, scat, and even their homes (look for holes, nests, and peeling bark).
- e) Wildlife can be affected by humans in a variety of ways. We can reduce disturbance to wildlife by observing seasonal closures, not going off-trail, and keeping a distance from wildlife when we see them so we can continued to enjoy them. We can disturb them directly, or by altering their habitat.

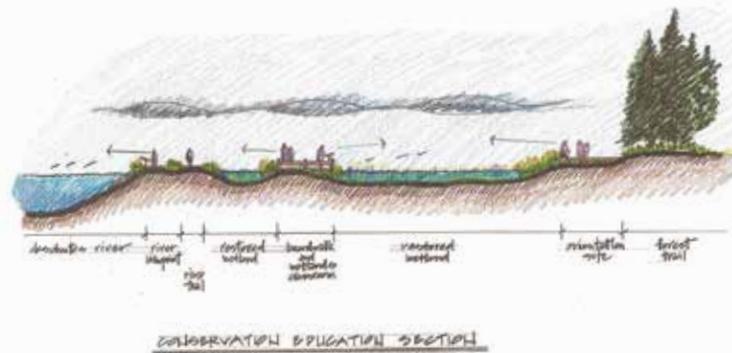


4. Ryan Ranch Wetland Restoration Site

Proposed future improvements

Site Description: Ryan Ranch Meadow is located along the Deschutes River Trail, between Dillon Falls and Slough Camp day-use areas. The Ryan Ranch Wetland Restoration Project has proposed to alter an existing levee and excavate three inlet/outlet channels between the river and slough basin in order to restore the wetland to historical condition. Additional proposed actions include vegetative planting and the construction of fish habitat structures. The project also proposes to re-route the Deschutes River Trail around the wetland area and construct an accessible interpretive boardwalk/trail loop in the northeastern lobe of the meadow/slough.

Approximately 600 feet of boardwalk would be constructed across the northeastern lobe of the slough for foot traffic and interpretive access, and approximately 1 ½ miles of naturally treaded trail would be defined around the outside boundary of the slough as a re-route of the 1/3-mile section of the River Trail currently located on the levee. There is the possibility for additional boardwalk construction leading to wildlife-viewing platforms.



Ryan Ranch Wetland on the Deschutes River Trail.

Current Interpretation: There are currently no interpretive services at this site.

Interpretive Site Design Guidelines: Adhere to the Ryan Ranch Wetland Restoration Project Master Plan and Interpretive Site Design which should include development of an Interpretive Plan. Construct ADA boardwalk that is conducive to a better educational experience with the wetlands. Design unobtrusive and lower height interpretive signs that draw your attention closer to the water. Use curves in the layout of the boardwalk which are more natural in appearance and repeat the natural curves of the river and surrounding landscape character.





Storylines:

Geology and Hydrology

- a) Slough/Meadow restoration and hydrology.
- b) Removal of levees.
- c) Restoration of floodplain.

Wildlife and Aquatics

As part of the Ryan Ranch Restoration Project:

- a) Small islands for nesting waterfowl habitat are being created.
- b) Three fish habitat structures are being constructed.
- c) Elk life histories, and monitoring of what the elk are eating pre and post project.
- d) Oregon spotted frog populations are currently a candidate species for listing under the ESA, and were recently discovered on the opposite shore, monitoring will be done to see if they will occupy the new habitat.

Forest Ecology and Vegetation

- a) The sets of plant species occupying upland vs. riparian/wetland habitats are largely distinct. Vegetation provides forage and shelter for a diversity of invertebrate and vertebrate animal species.
- b) Afforestation of meadow into forest through tree encroachment. How meadows are naturally created and maintained.

Forest/Resource Management

- a) Ryan Ranch Wetland Restoration Project.

Heritage

- a) Protection and interpretations of cultural sites throughout the area.
- b) Historical reasons for past meadow alterations.





5. North Gateway Scenic Byway Viewpoint

Recent improvements (2004-2009)

Site Description: Located within dense ponderosa pine forest with manzanita in the understory, there is currently off-Byway parking, a short interpretive trail, and a scenic viewpoint.

Current Interpretation:

Interpretive signs and a short interpretive trail with viewpoint. A new orientation Byway sign, introducing the “Journey of Water” interpretive theme, along with four additional interpretive signs were recently installed. Topics include native plants, forest management, Native American heritage, and wildlife. Copies of these same five signs are also located at the South Gateway Interpretive Site. An accessible interpretive trail includes resting areas with log benches, a recently restored viewpoint to Newberry Volcano, and an interpretive sign on geology. Planning and design began in 2004; construction and sign installation were completed in 2009.



Visitors enjoying the five newly installed interpretive signs at North Gateway Scenic Byway Viewpoint in the winter.

Interpretive Site Design Guidelines: Monitor site clean-ups and continued maintenance. Selective thinning so views to the site are more open from the road. Maintain open views to Newberry from the viewpoint.

Storylines:

Visitor Orientation

- a) Journey of Water and Welcome to Cascade Lakes National Scenic Byway – overall maps and interpretive theme for the byway. Signs installed in 2009.

Geology and Hydrology

- a) Where worlds collide: the Newberry-Cascade battleground. Geologic history and viewfinder. Sign installed in 2009.





History and Cultural Heritage

- a) Ceded lands and ancient trade routes. Sign installed in 2009.

Wildlife and Aquatics

- a) Who's watching who? Deer and elk graze in meadows and bald eagles nest in trees. Other wildlife such as black bear, beaver, river otter, marten, mink, and frogs are more hidden. Look for their tracks, trails, chew marks, burrows, and scat. Sign installed in 2009.

Forest Ecology and Vegetation

- a) Native plants are here because they have what they need to cope with conditions. Each species has an intriguing story to tell as it relates to this landscape. Sign installed in 2009.
- b) Ponderosa pine ecology.

Forest/Resource Management

- a) We're putting the 'scene' back in scenic. Sign installed in 2009.

6. Virginia Meissner Sno-Park

Proposed future improvements

Site Description: This Sno-Park has vault toilets and shelters near parking areas and is heavily used during winter with limited summer use. The parking area was recently expanded with an additional toilet and a new cabin and snow shelter constructed in 2014. An interpretive kiosk was added in 2015.

Current Interpretation: There is currently no Interpretation at this site.

Interpretive Site Design

Guidelines: Add Cascadian-style kiosk with winter-specific interpretation, personal interpretation, interpretive signs.

Storylines:

History and Cultural Heritage

- a) Winter recreation and historical use—history of cross-country skiing and snowshoeing.
- b) Virginia Meissner, an icon in the Nordic skiing community.



New cabin construction and additional toilet facilities



Geology and Hydrology

- a) The science of snow and frost.

Wildlife and Aquatics

- a) Adaptations of wildlife to snow and winter.
- b) Adaptations of plants to snow and winter.
- c) Winter wildlife tracking.

Forest Ecology and Vegetation

- a) Lodgepole pine ecology

Sustainable Recreation

- a) Resource protection
- b) Responsible trail use.

7. Wanoga Day-Use Area

Recent improvements (2004-2014), proposed future improvements

Site Description: This site is used primarily for snowmobiling, cross-country skiing, and snow play in the winter; and for mountain biking in the summer. In winter, features include a dog-friendly ski trail that is groomed by a local non-profit organization (DogPAC), a sledding hill used primarily by families, and access to numerous snowmobile trails. Wanoga Sno-Park has two main parking areas, one for snowmobile use, the other for cross-country skiing and snow play. There is a snow shelter located within the snowmobile parking area. A second shelter was constructed at the base of a newly designated sledding hill and snow play area. In the summer, it is heavily used by mountain bikers, and a number of local events are hosted here. An event specific trail network for Short Course Cross Country, Cyclocross, Epic XC, and Super D events was promoted by COTA (Central Oregon Trail Alliance), and several new trails have been constructed, are in progress, or are planned. Runners, hikers, and equestrians also use the area.

Current Interpretation: Interpretation at this site is currently minimal. One interpretive sign (Central Oregon Snow Play through the Years) was installed in 2009. A Cascadian-style kiosk with three panels was added in 2011 as a memorial to Steve Larsen with interpretive and informational signs and a trail map.



Cascadian-style kiosk at Steve Larsen memorial trailhead





Interpretive Site Design Guidelines: Add personal interpretation and ranger-led winter programs.

Storylines:

Forest/Resource Management

- a) Responsible trail use with summer and winter versions.

History and Cultural Heritage

- a) Winter recreation and historical use. Sign installed in 2009.
- b) Steve Larsen memorial and biography.

Geology and Hydrology

- a) The science of snow and frost.

Wildlife and Aquatics

- a) Adaptations of wildlife to snow and winter.
- b) Adaptations of plants to snow and winter.
- c) Winter wildlife tracking.
- d) Elk life histories.

8. Swampy Lakes Sno-Park / Trailhead

Proposed future improvements

Site Description: This Sno-Park has vault toilets and shelters near parking areas and is heavily used during winter with limited summer use.

Current Interpretation: There is currently no Interpretation at this site.

Interpretive Site Design Guidelines: Add Cascadian-style kiosk with winter-specific information, interpretive signs and personal interpretation.

Storylines:

History and Cultural Heritage

- a) Winter recreation and historical use—history of cross-country skiing and snowshoeing.
- b) Responsible trail use.

Geology and Hydrology

- a) The science of snow and frost.
- b) There is a landform between and adjacent to the two sno-parks on the north side of the Byway that is a glacial moraine. Story of glaciers that helped shape the scenic resources of the Byway (or a segue to the snow and frost story above). Snow trails that extend between the two sno-parks traverse this landform which provides desirable snowplay terrain. Swampy





is a relict of past glacial influence as are many of the other mountain lakes adjacent to and accessible from the Byway including Sparks, Devil, Elk and Cultus to name a few.

Wildlife and Aquatics

- a) Adaptations of wildlife to snow and winter.
- b) Adaptations of plants to snow and winter.
- c) Winter wildlife tracking.

Forest Ecology and Vegetation

- a) Lodgepole pine ecology

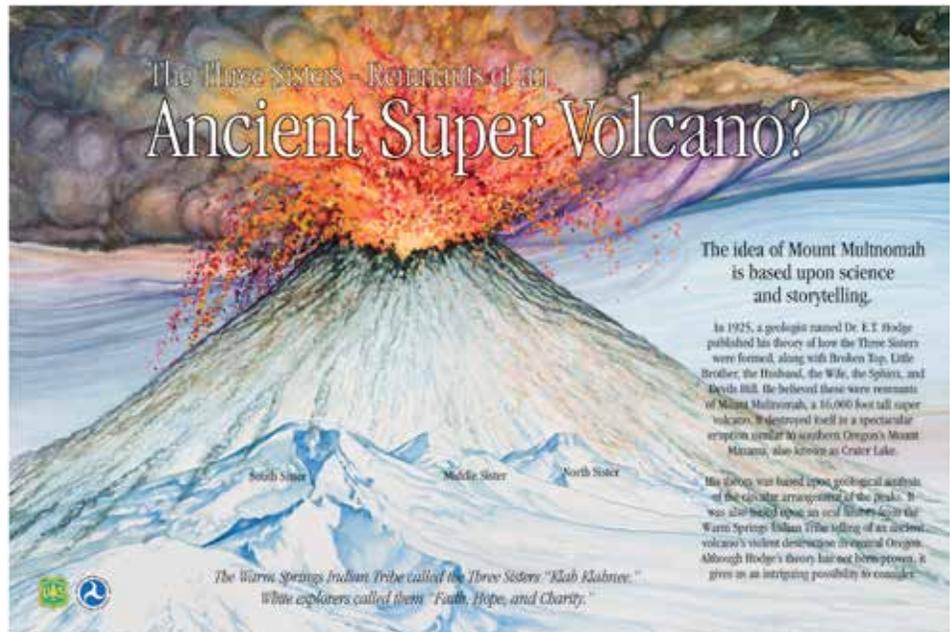
9. Kapka Butte Sno-Park

Recent improvements (2015)

Site Description: This Sno-Park was completed in 2014 as an alternate snowmobile staging and parking area to Dutchman Flat Sno-Park. It is located close to the junction of Cascade Lakes Scenic Byway on Road 45 to Sunriver. The trails accessed by this Sno-Park provide some of the best scenic views to the Three Sisters, Broken Top, and Mt. Bachelor. It has 70 parking spaces for large vehicles and trailers towing snowmobiles. A vault toilet will be added in the future.

Current

Interpretation: An interpretive sign describing the area's oral history and geologic theories for origins of the peaks visible in the nearby Three Sisters Wilderness.



New interpretive sign at Kapka Butte Sno-Park

Interpretive Site Design Guidelines: Add Cascadian-style kiosk with winter-specific information, interpretive signs, and Field Ranger interpretation.





Storylines:

History and Cultural Heritage

- a) Native American names for Three Sisters and other visible peaks, oral histories and legends of natural events occurring in the area over time
- b) Early explorer names for the surrounding peaks

Geology and Hydrology

- a) Geological theories, such as the one published in 1925 by geologist Dr. E.T. Hodge on the super volcano that may have formed the current peaks
- b) Geological formation of Kapka Butte and surrounding buttes including Mt. Bachelor
- c) Climate change and the receding glaciers in the Three Sisters Wilderness

10. Mt. Bachelor Ski and Summer Resort

Recent improvements (2004-2014), proposed future improvements

Site Description: Mt. Bachelor is a stratovolcano just over 9,000 feet tall, and is a heavily used recreation site. In winter, Mt. Bachelor is a premier destination for skiers and snowboarders. There are 7 Express Quads, 3 Triple Chairlifts, 1 Wonder Carpet, and 2 Tubing Lifts providing winter access. The Mt. Bachelor Nordic Center features a lodge with cafe, 56 kilometers of groomed track, and a shelter and several rest benches within the trail system. In the summer, sightseers can ride a chairlift above tree line to Pine Marten Lodge or follow a hiking trail to the summit.



New interpretive signs outside of Pine Marten Lodge

Current Interpretation: Ranger-led tours are offered in the summer and winter, with winter tours held on snowshoes and skis. Regular tours are scheduled on weekends and holidays, and on weekdays school group tours can be scheduled. Two new interpretive signs were added in 2014 at Pine Marten Lodge overlooking a stand of whitebark pine. One sign is about whitebark pine, the other about Clark's nutcrackers and their role in whitebark pine survival. The resort has been a valuable partner in supporting interpretation, and provides an excellent venue for reaching a diverse audience. Resort partnerships provide a framework for the distribution of Byway publications.

Interpretive Site Design Guidelines: Continue current interpretive programs, add additional interpretive signs, and maintain partnership with Mt. Bachelor Resort.



Storylines:

Geology and Hydrology

- a) Mt. Bachelor is the youngest and most accessible of the large Cascade volcanoes.
- b) It is part of the 15-mile-long Mt. Bachelor chain. This chain is composed of numerous cinder cones and lava flows and three shield volcanoes. The northernmost shield is capped by the steep-sided summit cone of Mt. Bachelor.
- c) The last eruptive episode occurred approximately 8,000 to 10,000 years ago and produced a scoria cone and lava flows on the lower north flank of Mt. Bachelor. All activity ended before 6,845 C-14 years BP, since tephra from the climactic eruption of Mt. Mazama is found on all deposits of the Bachelor chain.
- d) There is no geothermal activity at present; areas sometimes mistaken for fumaroles are actually the result of air movement through the porous structure.
- e) The history and impacts of glaciation on the landscape. The Cirque, accessible from the Summit chairlift, was carved by a glacier during the Little Ice Age.
- f) For tens of millions of years, the Cascade Range has been influenced by the subduction of oceanic plates off the coast of Oregon. This subduction provides the mechanics of heat and motion that have slowly built up the mountain range. The successive layering of lava flows and ash deposits, combined with the powerful erosional activity of glaciers and rivers during the last few million years, has resulted in the smooth topography of the eastern slopes of the Cascades, now dotted with volcanoes of various sizes.

Forest Ecology and Vegetation

- a) Several common forest types are conspicuous and strongly correlate with elevation, which in turn strongly influences seasonal temperatures and precipitation. With increasing elevation, forest stands dominated by ponderosa pine give way to stands of mixed conifers followed by stands of lodgepole pine and then mountain hemlock. Local topography and slope aspect (direction the slope faces) often result in a mosaic of several forest types present in relatively close proximity to one another.
- b) Unique and sensitive plants and animals have evolved over time throughout the volcanic Cascades landscape. These species have developed in small pockets throughout the area in response to unique combinations of geologic features, microclimates, and water.
- c) Whitebark pine life history. Sign to be installed in 2011.
- d) Among their variety of uses to humans and other animals, lichens are good air-quality indicators.
- e) The vegetation of the area is dominated by coniferous forest with inclusion of non-forested patches dominated by shrubs and/or herbaceous plants.
- f) Hemlock ecology.

Wildlife and Aquatics

- a) Species that use alpine and subalpine areas are specially adapted.
- b) American pika can sometimes be heard in alpine and subalpine areas, and in some of the lava flows. The pika is famous for its sensitivity to heat; it can die after brief exposure to temperatures above 78 degrees F. This makes the pika especially vulnerable to global





warming—as populations continue to move higher up the mountains, eventually they may get to the top and have nowhere else to go.

- c) As you move up in elevation, you can clearly see different ecosystems—high desert near the start of the Byway, moving up through different types of forests, with alpine areas at the tops of the mountains.
- d) Clark's nutcracker and its role in the whitebark pine reproduction. Sign to be installed in 2011.

Climate Change

- a) Mountain ecosystems are especially sensitive to climate change. Climate in mountains can vary considerably over a small area due to complex terrains. A warmer climate would cause lower-elevation habitats to migrate upward. Those already at the top would have nowhere higher to move up to, and we could end up losing them altogether.

11. Dutchman Flat Area

Proposed future improvements

Site Description: This is one of the most impressive viewpoints along the Byway, with Mt. Bachelor, the Three Sisters, and Broken Top towering above the flat. There is a trailhead and parking at the Dutchman Flat Sno-Park, but the signage, with winter trail regulations, and a vault toilet impede the view.

Current Interpretation: There are currently no interpretive services at this site.

Interpretive Site Design Guidelines: Redesign site to include better summer use to allow an unimpeded view of the mountains is recommended. Expansion of existing site to include more viewing and interpretive opportunities. Add Cascadian-style kiosk with recreation information and interpretive signs.

Storylines:

Geology and Hydrology

- a) Mountain finder.
- b) History and impacts of glaciation on the landscape.
- c) Volcanic history of the area.
- d) Broken Top shows the layers of different eruptions through time. Broken Top has a broken top not because of these eruptions, but because glaciers have scoured away its surface, leaving these layers of past eruptions revealed.
- e) Lack of surface water: The porous volcanic landscape acts as a sponge-like conduit for an elaborate groundwater system, holding a tremendous volume of water that is released slowly and consistently.
- f) New scientific research by the USGS on South Sister and the 'Bulge.' Good view of South Sister from Dutchman Flat Sno-Park. Describe hazards of this very active volcano to Central Oregon.
- g) The cycle of water and its various forms (Hydrologic Cycle).





Wildlife and Aquatics

- a) Flagline Trail is seasonally closed for elk calving. Elk life history.
- b) Winter safety and avalanche danger, and mountain finder are relevant.

History and Cultural Heritage

- a) Remains of historic fire lookout on summit of Tumalo Mountain.
- b) How Dutchman Flat was named.

12. Todd Lake

Recent improvements (2013)

Site Description: The Todd Lake Trailhead is about a half-mile off of the Byway, on the 370 Road. A short (1/8 mile) hike from the parking area leads to a small lake within a glacial cirque. A 1-mile loop trail circumnavigates the lake. Heavy use of the trail around the lake is causing damage to the meadow along the far end of the lake.

Current Interpretation: Originally named Lost Lake, the name was changed to Todd Lake after John Y. Todd, an early Central Oregon settler. A new interpretive sign replaced the historic wooden sign and provides information on the name and characteristics of the lake.

Interpretive Site Design

Guidelines: Personal interpretation, self-discovery, interpretive trail, or boardwalk across meadow and along lakeshore to protect sensitive meadow and riparian areas.

Storylines:

Forest Ecology and

Vegetation

- a) The sets of plant species occupying upland vs. riparian/wetland habitats are largely distinct.
- b) Perhaps the highest levels of species diversity can be found within the various types of meadows encountered at elevations ranging from the ponderosa pine forests up to the lightly forested or non-forested subalpine and alpine settings. These meadows, which may include a rich array of grasses, sedges, and wildflowers, are



Historic wooden sign was replaced in 2013





- often associated with stream and lake edges, areas of seasonal water collection, and areas that are perennially wet due to groundwater emergence. Ultimately, the patterns of vegetation in the Byway area can be largely understood by the schedule and abundance of water availability.
- c) Interpretation explaining the vulnerability of these types of ecosystems and how recreational-use ethics could help reduce damage to the meadow area.

Geology and Hydrology

- a) The history and impacts of glaciation on the landscape.

13. Soda Creek Interpretive Site

Recent improvements (2013)

Site Description: Soda Creek flows from Broken Top down into Sparks Lake. There is a small primitive campground where the creek enters the lake. This site is inundated with water and soil during the annual spring thaw, and signs are often inaccessible and surrounded by water during this time. Donated memorial benches have also been damaged.

Current Interpretation:

There are currently two interpretive signs at this site. One describes the Soda Creek flood of 1966, when a natural dam holding back a moraine lake failed. The other describes the restoration of Soda Creek from a bulldozed channel following the flood to its historic form. These signs and three refurbished Byway log benches were relocated to a new interpretive site outside of the floodplain with a view of the creek restoration and South Sister.



Byway traveler enjoying new interpretive site with view of Sparks Meadow and South Sister.

Interpretive Site Design Guidelines: Maintain open accessibility to interpretive signs and to creek area as scarred areas are revegetated and restored.





Storylines:

Geology and Hydrology

- a) In 1966, a natural dam holding back a moraine lake failed. A huge chunk of glacial ice had fallen into the lake, causing a “tidal wave” which washed out part of the dam. More than 1/3 of Sparks Meadow was covered with mud and rocks. Existing signs to be relocated.
- b) After the flood, the debris and creek were bulldozed, turning the once meandering creek into a straight channel. After years of hydrological study and analysis, the creek was restored. Curves and pools were created, and vegetation was replanted. The long-term results of this restoration are being monitored by biologists, hydrologists, and stream designers.

Wildlife and Aquatics

- a) Stream gravel provides excellent spawning habitat for adult fish from the lake, and young fingerlings stay here before moving to the lake.

14. Ray Atkeson Memorial Trail at Sparks Lake

Proposed future improvements

Site Description: A beautiful short loop hike along the shore of Sparks Lake and through lava flows forested with lodgepole pines. Trail includes a 1/2-mile, paved wheelchair-accessible section at the start. Several benches are provided to enjoy the great views to the high Cascades. This trail was built as a memorial to Oregon’s long-time photographer laureate at his favorite place.

Current Interpretation:

Interpretive Signs and self-discovery.

Interpretive Site Design Guidelines:

Continued maintenance which includes keeping signs to a minimal, refinishing and replacing missing log benches, and reinstalling directional trail signs.

Storylines:

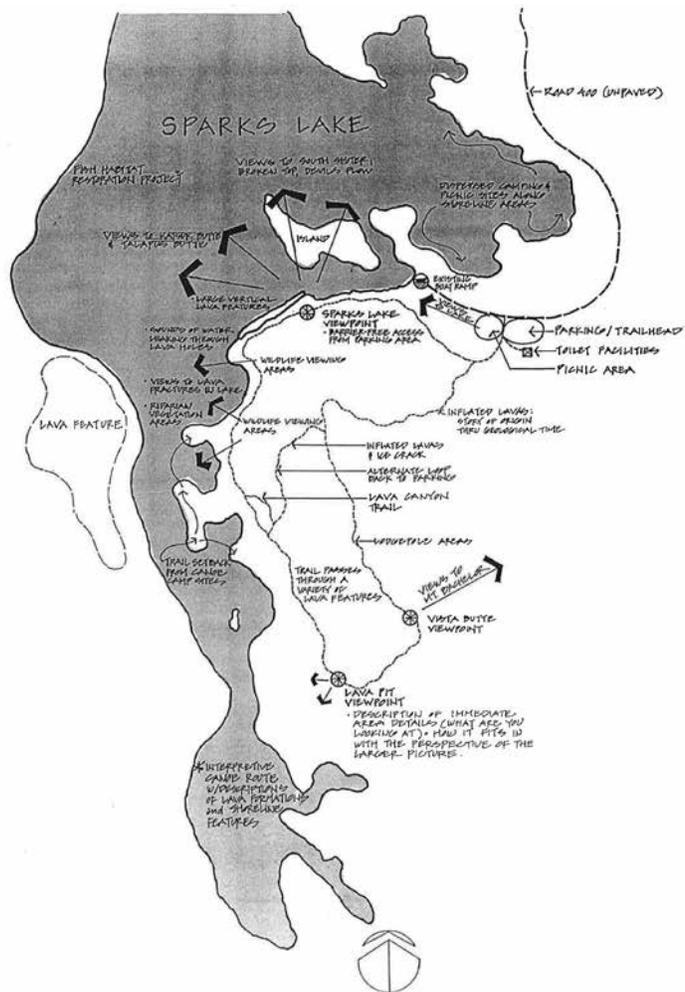
Geology and Hydrology

- a) Sparks Lake was formed about 10,000 years ago when lavas from the Mt. Bachelor Volcanic Chain





- blocked the upper Deschutes River.
- It is the first of the high lakes you see from the Cascade Lakes Highway west of Bend, and the views of South Sister, Mt. Bachelor, and Broken Top are breathtaking.
 - Sparks Lake covers 400 acres and has a maximum depth of 10 feet. The deepest area of the lake is at the far south end.
 - Fascinating lava formations surround the lake.
 - At several points along the shore, the lake's water disappears into the edges of the lava, producing sucking noises as the water drains out.



Forest Ecology and Vegetation

- Unique and sensitive plants and animals have evolved over time throughout the volcanic Cascades landscape. These species have developed in small pockets throughout the area in response to unique combinations of geologic features, microclimates, and water.
- Vegetation provides forage and shelter for a diversity of invertebrate and vertebrate animal species.
- Fungi, though generally inconspicuous above the ground, are critically important components of forest ecosystems.

Wildlife and Aquatics

- The area is a critical stopover and feeding ground for thousands of resident and Neotropical migratory birds. Their survival is tied closely to the vegetative and aquatic habitat and protective cover found here.
- Different species of wildlife use different types of habitat. Mustelids include weasels (ermine), skunk, mink, otter, marten, fisher, badger, bats, and wolverine. Life histories and habitat use.
- Watch for the low flight of northern harrier, and osprey, red-tailed hawks, bald eagles, golden eagles, and common nighthawks may circle or swoop overhead. Look for old snags pitted with trunk cavities that invite tree swallow or mountain bluebird. Search willow thickets for yellow warbler or MacGillivray's warbler.





15. Sparks Lake Boat Ramp

Recent improvements (2012)

Site Description: As the only boat ramp on Sparks Lake, this site is heavily used during the summer. From the Byway, visitors drive about 1 1/2 miles on a dirt road to reach the boat ramp. In addition to providing boat access, this site also functions as a day-use area with swimming and picnicking. The view from the boat ramp includes South Sister, Broken Top, and Sparks Lake. The boat ramp is adjacent to the parking, a vault toilet, and the trailhead for the Ray Atkeson Memorial Trail.

Current Interpretation: Two interpretive signs were installed in 2012. One sign discusses the creation and hydrology of Sparks Lake, and the other explains the inflated lavas visible from the boat ramp.



New interpretive signs installed by YCC Crew in 2012

Interpretive Site Design Guidelines: Long-term maintenance, low level of development, and maintain natural appearance of area by preventing it from becoming over-signed.

Storylines:

Geology and Hydrology

- a) Inflated lava. These steep-walled lava rock outcrops were created when lava went through a process called inflation. As Mt. Bachelor's lava spread like an expanding puddle over a relatively flat area, the rate of its advance began to slow down. Eventually, the effect of cooling thickened the crust, causing the flow's edge to halt altogether. As new lava continued to enter the flow, it became easier to lift the cooled crust than to advance the flow, so the flow surface rose vertically like giant loaves of leavened bread.
- b) Where Does The Water Go? Some 10,000 years ago, Mt. Bachelor erupted and lava poured down into this area. Upon cooling, the lava formed a natural rock dam that began capturing snowmelt and rainwater. Though the lava was solid enough to keep the water from flowing away, many fractures and cracks in the rock do allow a portion of the water to percolate out. The result is a lake without a visible surface outlet. As the water travels down through layers of sand and gravel and deeper lava flows, the water sometimes encounters layers it can't flow through and is forced up as springs. Think of Sparks Lake as the unofficial source of the Deschutes River.



16. Sparks Meadow Wayside

Improvements in progress

Site Description: Sparks Meadow Wayside consists of a parking area with a viewpoint. The view from this site includes Sparks Lake, with the foreground filling in as a meadow, and several of the Cascade volcanoes, including Mt. Bachelor, Broken Top, and South Sister.

Current Interpretation: There is a restored wooden historic sign with basic information about Sparks Lake. This sign provides information on the size, depth, and name of the lake. An interpretive sign about sediment filling the lake and forming a meadow was installed in 2012.

Interpretive Site Design

Guidelines: As a spectacular viewpoint, a mountain finder would also be appropriate at this site. One of the volcanoes visible from this site is South Sister, a volcano that is currently swelling due to a deep magma chamber, providing an excellent interpretive opportunity to explain volcanic processes.



New interpretive sign installed by YCC Crew in 2012.

Storylines:

Geology and Hydrology

- a) Mountain finder.
- b) Sparks Lake was formed nearly 10,000 years ago—and it's been shrinking ever since. Originally close to 700 acres in size, this shallow lake is steadily filling up with sediment that's deposited by streams that feed the lake. Additional sediment has been added by ancient volcanic eruptions, events that showered rock, ash, and cinder (air-fall volcanic materials collectively called "tephra") into the lake. The lake's deepest point is at the south end, where it reaches a maximum depth of 10 feet. Here on the north end, you can see that the lake has already filled in, a process that creates a wetland and sprawling meadow. Sign to be installed in 2011.
- c) The history of the Deschutes River and its changing pathways. Lava flows from Mt. Bachelor blocked the flow at its original headwaters, now Sparks Lake.
- d) The South Sister 'bulge' and volcanic processes.

Forest Ecology and Vegetation

- a) Seasonality of wildflowers.



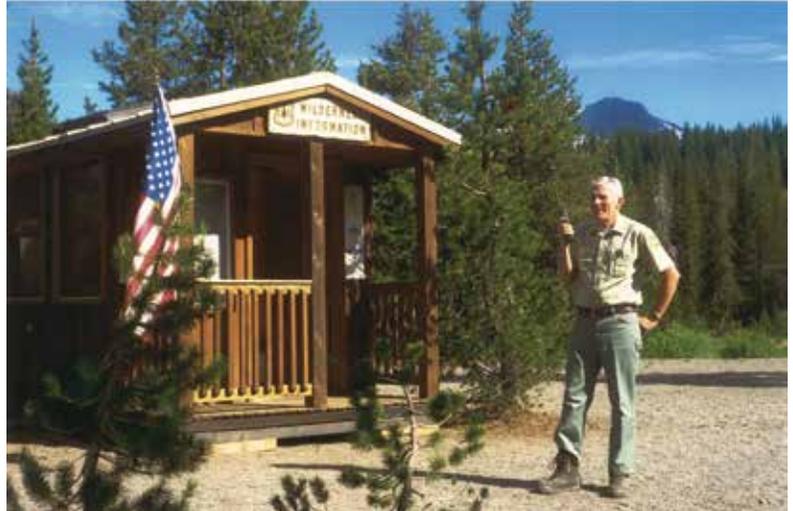


17. Green Lakes Trailhead

Proposed future improvements

Site Description: This heavily used trailhead provides access into the Three Sisters Wilderness Area. At the trailhead, there is a vault toilet and a large parking area.

Current Interpretation: Until 2005, the Green Lakes Trailhead Information Station was staffed daily as part of a partnership with COCC and OSU. Through this partnership, information and interpretation were provided throughout the summer, with a focus on conservation ethics, Leave No Trace, and wilderness. There are currently no interpretive services at this site.



Future interpretation and restoration of Wilderness Trailhead Visitor Services.

Interpretive Site Design

Guidelines: Add Cascadian-style kiosk with interpretive signs and trail information, personal interpretation, self-discovery. Because this is such a highly used wilderness trailhead, information on conservation ethics, Leave No Trace, and wilderness are especially relevant. Developing partnerships to staff the Green Lakes Trailhead Information Station would provide positive results through visitor contact.

Storylines:

Forest/Resource Management

- a) Leave No Trace Ethics. Why are there designated campsites in Wilderness? What are the effects of special areas being loved to death?
- b) The wilderness concept and history of the Wilderness Act.

Wildlife and Aquatics

- a) Wildlife can be affected by humans in a variety of ways. We can disturb them directly, or by altering their habitat.





18. Ray Atkeson Memorial Photopoint Wayside

Recent improvements (2004-2009)

Site Description: Wayside pullout with view of Mt. Bachelor and Sparks Lake.

Current Interpretation: Two interpretive signs about Ray Atkeson. Vandals removed one interpretive sign so new signs were ordered and installed in 2008.

Interpretive Site Design

Guidelines: Continued maintenance. Maintain and frame views with cottonwood and aspen grove. Remove bright orange snow poles during summer season.



Summer visitor enjoying the interpretive signs and view of Mt. Bachelor from the Ray Atkeson Memorial Photopoint Wayside.

Storylines:

History and Cultural Heritage

- a) Ray Atkeson (February 13, 1907 – May 25, 1990) was a famed landscape photographer, member of the Photographic Hall of Fame, and Oregon State Photographer Laureate 1987-1990.

19. Devils Garden

Possible maintenance

Site Description: Small turnout and short walk to a view of pictographs.

Current Interpretation: There is a metal stand and box with a register and interpretive information about the Archaeological Resources Protection Act of 1979 and the fragility and importance of rock art. This metal box is fairly unobtrusive and does not draw attention to the site, but provides information to those who seek it out.

Interpretive Site Design Guidelines: Continued maintenance and greater protection for the rock art such as low rails and funding to upgrade and maintain box.

Storylines:

History and Cultural Heritage

- a) Humans were affected by past volcanic eruptions, including the eruptions of Mt. Mazama (7000 BP) and South Sister (Devils Pass flow). Some of these eruptions left lava flows which humans





have used for travel, caches, hunting blinds, vision quests, and rock art (spiritual and religious). These eruptions have also shaped the flow of water through the landscape.

- b) Rivers, streams, and lava flows provided travel corridors as well as food, water, stone, wood, and plant resources for human use. One particularly significant lava flow is the dacite flow at Devils Pass.
- c) Archaeological Resources Protection Act of 1979 and the fragility and importance of rock art.
- d) Astronaut training and Devils Pass rock that was left on the moon.

Geology and Hydrology

- a) The light-gray jumbled volcanic rock to the east of this sign is the southern end of the Devils Hill dome chain and is an extrusive rock known as dacite. Dacite is a highly silicic rock.
- b) Lavas with high amounts of silica tend to be viscous and thick. When they also have a high gas content, they erupt very violently, ejecting large amounts of tephra (ash, lava bombs, and cinders) into the air.

20. Devils Lake Wayside

Improvements in progress

Site Description: This is a turnout adjacent to Devils Lake.

Current Interpretation: Restored historic wooden wayside sign located above Devils Lake. A new interpretive sign was installed in 2012 on sub-glacial eruptions and the formation of Talapus and Katsuk Buttes. An additional interpretive sign was installed in 2013 on the South Sister Bulge and how it was discovered by satellite.

Interpretive Site Design Guidelines: Long-term maintenance to keep the historic wooden wayside sign stained and letters repainted when faded.

Storylines:

Geology and Hydrology

- a) Fire and Ice. Nearly 15,000 years ago, this entire area was iced over by a glacier. Then Talapus and Katsuk Buttes, those forested hills across from you, began to erupt beneath the ice. These subglacial eruptions, melted a hole in the glacier as they erupted. Behind you, to the north, are volcanic deposits from the beginning of this eruption. Sign to be installed in 2011.
- b) Geothermal potential near Devils Lake.



Cascadian-style historic wooden sign and lava rock base.





- c) Geologically recent rhyolite and obsidian flows.
- d) New scientific research by the USGS on South Sister and the 'Bulge.' Describe hazards of this very active volcano to Central Oregon.

History and Cultural Heritage

- a) In the mid-1960s, astronauts trained in Central Oregon and along the Cascade Lakes Highway in preparation for the Apollo missions to the moon. In 1971, Astronaut Jim Irwin, aboard Apollo 15, placed an Earth rock on the lunar surface, the only Earth rock on the moon. The rock came from the volcanic dome near Devils Lake.



View to Elk Lake while learning about its formation.

21. Devils Lake Trailhead

Proposed future improvements

Site Description: Trailhead facilities. This is a high-use trailhead, and the primary access point for the South Sister summit. Visitors park in the trailhead lot and on the side of the road.

Current Interpretation: There are currently no interpretive services at this site.

Interpretive Site Design Guidelines: Add Cascadian-style kiosk with interpretive signs and trail information, personal interpretation.

Storylines:

Forest/Resource Management

- a) Leave No Trace Ethics.
- b) The wilderness concept and history of the Wilderness Act.

Geology and Hydrology

- a) Geology of South Sister: New scientific research by the USGS on South Sister and the 'Bulge.' Describe hazards of this very active volcano to Central Oregon.
- b) Types of lava visible from Devils Lake.
- c) Geothermal potential near Devils Lake.





22. Elk Lake Guard Station

Recent improvements (2004-2011), additional improvements in progress

Site Description: This historic building was constructed in 1929 and was restored by Passport in Time and Forest Service projects between 1998 and 2001. Rededication celebration was held here in 2001.

Current Interpretation:

Since 2002, the Guard Station has served as a daily summer season visitor information and interpretation facility on the Cascade Lakes National Scenic Byway. It is currently the Deschutes National Forest's only visitor contact and service facility located along the Byway. The Guard Station is staffed daily from mid-June through mid-September by uniformed Passport in Time volunteer interpretive specialists. There are four interpretive signs focusing on the history of the station and the Forest Guard. An interpretive sign on the history of Elk Lake Guard Station was installed in 2011.



A visitor learns about the history of the Elk Lake Guard Station.

Interpretive Site Design Guidelines: Continue to maintain site as a Byway contact for visitors, community events and service facility.

Storylines:

- a) History of Elk Lake Guard Station.
- b) History of Forest Guard and Elk Lake area.
Interpretive sign present.
- c) It is important for the public to help support the protection and preservation of the many sites along the Cascade Lakes Scenic Byway, and Passport in Time projects offer visitors the opportunity



Passport in Time volunteers Walt and Theresa Beery staff the station and provide visitor information throughout the summer.





to become involved with the preservation and study of some of the sites along the Byway. The Passport in Time program has resulted in a rise of volunteerism, with organized volunteer opportunities throughout the nation. An ongoing opportunity on the Deschutes National Forest is the Historic Elk Lake Guard Station Staffing Project.

23. Elk Lake Resort and Campgrounds

Proposed future improvements

Site Description: A picturesque setting, the Three Sisters tower over the north end of Elk Lake and Mt. Bachelor dominates the eastern horizon. The lake itself is so transparent you can see the bottom clearly from any location on the surface. The resort is open year-round and in winter can be reached on skis, snowshoes, snowmobile, snowcat, or dogsled. It offers a restaurant, gas station, camp store, and rental cabins. In the summer, in addition to the resort, there are multiple campgrounds and two day-use areas. Elk Lake is especially popular for swimming and wind surfing. Elk Lake Resort is a popular stop for Pacific Crest Trail hikers, and many hikers mail resupply packages to themselves through the resort.

Current Interpretation: No active interpretation. Self-discovery.

Interpretive Site Design

Guidelines: Personal interpretation, self-discovery, interpretive signs. Partnerships with the resort and campground hosts to provide brochures and maps.



A kayaker paddles across Elk Lake.

Storylines:

Geology and Hydrology

- a) Variation between different Cascade lakes.

History and Cultural Heritage

- a) Recreational history of Elk Lake.
- b) Pacific Crest Trail connection and history.
- c) Recreation residences - historic buildings, Luther Metke, historic log cabins by resort.





24. Elk Lake Viewpoint #1

Recent improvements (2009)

Site Description: Viewpoint of Elk Lake and mountains at roadside turnout. Site is adjacent to the Elk Lake Fire of 2006.

Current Interpretation: Two new interpretive signs on wildlife migration and fire ecology were installed in 2009. Due to flawed fabrication, the two sides faded and peeled and were to be replaced by the fabricator.

Interpretive Site Design Guidelines:

Maintain open view to Elk Lake from viewpoint and maintain integrity and condition of interpretive signs and replace when damage is apparent.

Storylines:

Wildlife and Aquatics

- a) The area is a critical stopover and feeding ground for thousands of resident and Neotropical migratory birds. Their survival is tied closely to the vegetative and aquatic habitat and protective cover found there.

Forest Ecology and Vegetation

- a) Fire ecology.



Outdoor learning and coffee at Elk Lake Viewpoint.

25. Elk Lake Viewpoint #2

Recent improvements (2013)

Site Description: Existing viewpoint with turnout, although removal of a row of lodgepole pine adjacent to the pavement would enhance the views to Mt. Bachelor, Broken Top, South Sister, and Elk Lake.

Current Interpretation: Two new interpretive signs were added in 2013 that describe the Mt. Bachelor Volcanic Chain and how Elk Lake was formed from glaciers.

Interpretive Site Design Guidelines: Maintain open views to Elk Lake from viewpoint.





Storylines:

Forest Ecology and Vegetation

- a) Forests on the east side of the Cascades have developed in response both to natural disturbances and to human activity. Insects and lightning-caused fires have always been natural processes in the forest. Trees killed by insects provide fuel for lightning-caused fires. Over time, insects and fire have created a wide variety of forest conditions. Our attempt to prevent large fires during the last century has often led to more uniform vegetation across large areas of the landscape.



Open views to Elk Lake at interpretive site.

Climate Change

- a) The potential effects of climate change on this unique landscape and the management efforts to address both climate change and its effects.
- b) Many natural processes may be accentuated by climate change. Warmer temperatures and reduced water availability weaken the resistance of trees to insects and disease. Multiple species of bark beetle are native to Central Oregon, but weakened resistance to stress means that more trees are dying.

26. Hosmer Lake

Proposed future improvements

Site Description: Hosmer Lake has two major pools connected by a channel about a mile long, with rich and abundant aquatic life. It is a “fly-fishing only” lake, with Atlantic salmon, brook trout, and rainbows that are quite visible in these shallow, clear waters. There are breathtaking views of Mt. Bachelor, South Sister, Broken Top, and a variety of waterfowl, ospreys, and bald eagles are regularly seen at this lake. Hosmer Lake was originally named Mud Lake because a large population of introduced carp stirred up the fine pumice and detritus on the bottom, causing muddy water. The carp have been eradicated, and, in 1965, the name was changed to honor Paul Hosmer, a long-time resident of Bend and well-known amateur naturalist (ODFW, 1996). There are two campgrounds, South and Mallard Marsh, and a boat ramp with associated parking and vault toilet. The lake is a hidden jewel of green and blue surrounded by dark green forest. Thickets of bulrush wands hide the most secretive wildlife and fish. At the north end, water drains into a porous rim of lava. The best way to experience this lake is by canoe, but a shoreline hike will still produce wondrous sights and sounds. Take your camera to capture the spectacular view of Mt. Bachelor.



Current Interpretation: Campground hosts currently provide interpretation, and this is a fee site with several regulatory signs, but there are no interpretive signs. Interpretive canoe tours have been historically offered in the summer. These have been led by long-time campground hosts Max and Nyla Peel with support from Forest Service field rangers.

Interpretive Site Design Guidelines:

Interpretive signs to be added at boat ramp (as per proposed site plan) and accessible canoe launch to be constructed (pending partnerships and funding).



Paddling on Hosmer Lake.

Storylines:

Forest Ecology and Vegetation

- a) The sets of plant species occupying upland vs. riparian/wetland habitats are largely distinct.
- b) Vegetation provides forage and shelter for a diversity of invertebrate and vertebrate animal species.
- c) The role and effect of mountain pine beetle on lodgepole pine. Natural forest cycles, and human impacts.
- d) Forest succession and the transition from lake to marsh.

Geology and Hydrology

- a) The history of the Deschutes River and its changing pathways.
- b) The porous volcanic landscape acts as a sponge-like conduit for an elaborate groundwater system, holding a tremendous volume of water that is released slowly and consistently.

Wildlife and Aquatics

- a) The area is a critical stopover and feeding ground for thousands of resident and Neotropical migratory birds. Their survival is tied closely to the vegetative and aquatic habitat and protective cover found here.
- b) Frequently viewed wildlife at Hosmer Lake include osprey, bald eagles, and waterfowl.
- c) Insects of Hosmer Lake and their role in the food chain.
- d) This is one of only two locations in Central Oregon for Atlantic salmon—their life history. Another fish in the glass-clear water is brook trout.
- e) This is a place to find American bittern, Virginia rail, sora, three-toed woodpecker, black-backed woodpecker, and sometimes wood duck.
- f) Meadows along the lake's northwest shore are grazed by Rocky Mountain elk.
- g) You might encounter common nighthawk, Costa's hummingbird, gray jay, Clark's nutcracker, and three kinds of blackbird (Brewer's, red-winged, and yellow-headed).





- h) Black bear are an occasional night-time visitor to campgrounds. A fed bear is a dead bear—when they are fed they learn to associate humans with food and become emboldened.
- i) Amphibians - Oregon spotted frog
- j) Seasonal west-east movements of deer and elk.

27. Little Lava Lake: Headwaters of the Deschutes River

Recent improvements (2012)

Site Description: Little Lava Lake is a small forest lake just south of “Big” Lava Lake. It is 130 acres with a maximum depth of 20 feet. There is a shallow wading area for children near the boat ramp and a small campground. It is the headwaters of the Deschutes River:

Current Interpretation: In the past, occasional interpretive walks from the nearby Lava Lake Resort were offered. An interpretive sign was installed in 2012 that describes the hydrology of Little Lava Lake and the source of the Deschutes River:

Interpretive Site Design

Guidelines: Add interpretive signs at the Boat Ramp and provide personal interpretation along the water:

Storylines:

Geology and Hydrology

- a) This is the official headwaters of the mighty Deschutes River. Interestingly, there is no above-ground inlet supplying water to the lake—it is spring-fed. Only in extremely wet years is there enough water for Lava Lake to overflow and run above-ground into Little Lava Lake. When Mt. Bachelor, to the northeast, erupted 10,000 years ago, its thick lava flows blocked the ancestral Deschutes River and also formed Sparks Lake, a lake without a visible outlet. But the water does flow somewhere. Instead of flowing aboveground, water from Sparks Lake flows underground into Little Lava Lake, emerging here and helping to form the Deschutes.
- b) The morphology, or shape, of this landscape is caused and greatly affected by geology. These geologic processes are constantly in motion, but to the casual observer they are very static and unmoving. The lava flows, cinder cones, and layers of ash are like ancient clock hands frozen in



New interpretive sign installed by YCC Crew in 2012.



time. They are the markers for the geologic history and give geologists clues into the history and age of this volcanic landscape. As these various rocks weather and decompose, they create soil, which provides nutrients for the plants and trees and habitat for animals.

History and Cultural Heritage

- a) Three Trapper Story.
- b) Large archeological site needing protection and ARPA information signage as well as general interpretation.

28. Wayside Fen

Recent improvements (2013)

Site Description: Small gravel turnout with view of Mt. Bachelor and a fen. This site is not currently marked.

Current Interpretation: Two interpretive signs were installed in 2013 that describe the Lava Lakes fen ecology and peatland.

Interpretive Site Design

Guidelines: Improve turn-out with grading and paving.

Storylines:

Relevant topics include wetland and fen ecology, dependent flora and fauna, and hydrology.

Forest Ecology and Vegetation

- a) Due to the area's special hydrogeology, numerous fens (peatlands) occur within the Scenic Byway area. Fens, which are groundwater-dependent ecosystems, are home to many rare or uncommon plant species, including insectivorous plants.
- b) Fens were once thought to be a phase in the natural succession from open lake to woodland or bog, but fens are now generally recognized as persistent habitats whose existence is dependent on the availability of water. Often spring-fed, some fens have visible surface water; but in other instances the water rises only near enough to the surface to support wetland



Byway traveler comes all the way from Hawai`i to see new Wayside Fen interpretive signs.





plants. Fens differ from bogs because they are less acidic and have higher nutrient levels. They are therefore able to support a much more diverse plant and animal community. These systems are often covered by grasses, sedges, rushes, and wildflowers. Mining and draining for cropland, fuel, and fertilizer have resulted in a large historical loss of this ecosystem type. Remaining fens are rare, and up to 10,000 years are required to form a new fen naturally.

29. Deschutes River Corridor

Proposed future improvements

Site Description: Not marked, but clearly visible from highway. This stretch of the river is scenic, and is heavily used for fishing. Some damage to the riparian area is occurring due to recreational use. The Deschutes flows south here, but soon curves around to flow north into the Columbia River. There are multiple turnouts for parking.

Current Interpretation: There are currently no interpretive services at this site.

Interpretive Site Design Guidelines: Add interpretive signs on lava rock base at parking turnouts, personal interpretation.

Storylines:

Topics relevant to this site include riparian ecology and human impacts on streams and rivers.

Geology and Hydrology

- a) As one of the oldest members of this volcanic landscape, the Deschutes River has been a constant in this ever-changing landscape and has played an active role in creating the topography.

Forest Ecology and Vegetation

- a) Vegetation provides forage and shelter for a diversity of invertebrate and vertebrate animal species.

Wildlife and Aquatics

- a) Cool, clear, spring-fed streams provide habitat for various native fish and other aquatic organisms. The aquatic environment has been altered by humans through the creation of water-storing reservoirs and the introduction of non-native fish species. These alterations have contributed to the extirpation of the Upper Deschutes population of native bull trout, a threatened species.
- a) Habitats created by the river and the species that use them.

Forest/Resource Management

- a) Leave No Trace Ethics.
- b) Recreation in riparian areas (wildlife).





30. Deschutes Bridge Historic Guard Station

Proposed future improvements

Site Description: Marked from the highway, but not currently marked at site. This 609-sq.-ft. building was constructed in 1934. It has been used as a camp for corrections crews, and is currently managed as an administrative site. Nearby is the Deschutes Bridge Campground, which has 12 camping sites, a vault toilet, and drinking water.

Current Interpretation: There are currently no interpretive services at this site.

Interpretive Site Design

Guidelines: Interpretive signs or brochures about the station's historic use. Restore historic character of this Guard Station and turn into a recreation rental like the Fall River Guard Station.



Future interpretation and restoration of the historic Deschutes Bridge Guard Station.

Storylines:

History and Cultural Heritage

- a) Historic role of guard stations.
- b) History of Deschutes Bridge Historic Guard Station.

31. Cultus Lake Resort and Campground

Proposed future improvements

Site Description: Cultus Lake is popular for swimming, fishing, sunbathing, and motorized watersports, including jetskiing, waterskiing, and wakeboarding. Hiking trails lead along the edge of the lake and into the wilderness. The resort offers cabin rentals, a camp store, and a restaurant. Cultus Lake Campground has 55 sites and an amphitheater. This campground is especially popular with families.

Current Interpretation: Historically, ranger-led programs have been offered periodically in the amphitheater throughout the summer. There are currently no interpretive services at this site.

Interpretive Site Design Guidelines: Interpretive signs, personal interpretation, ranger-led evening programs. Ranger-led evening programs in the amphitheater provide the opportunity to reach a wide audience and provide a variety of interpretive programs.





Storylines:

Relevant topics include invasive aquatic species, forest and lake ecology, fisheries, and lake-associated wildlife.

Geology and Hydrology

- a) Cultus Lake is a glacially formed lake.

Wildlife and Aquatics

- a) Lake-associated wildlife.
- b) Northern Spotted Owl habitat and life history.
- c) Keeping wildlife wild.

Forest Ecology and Vegetation

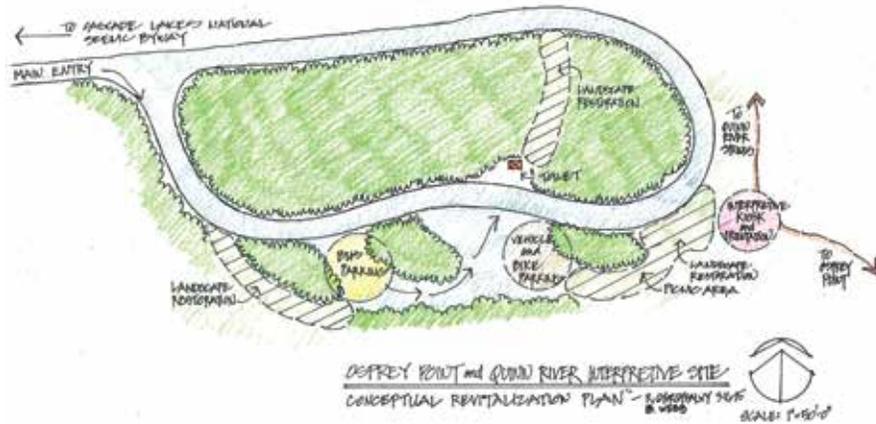
- a) Natural cycles of insects and disease.

32. Quinn River and Osprey Point Interpretive Site

Proposed future improvements

Site Description: The large existing parking area needs to be redesigned to improve circulation and allow a parking area for vehicles as well as buses. An existing vault toilet needs to be upgraded and its vent needs to be screened.

The picnic tables have seen better days and should be replaced. A ½-mile interpretive trail leading to Osprey Point needs rejuvenation with fresh gravel and removal of vegetation growing in. A ¼-mile interpretive trail connects to Quinn River Campground and features Billy Quinn’s gravesite, a Cy Bingham tree, and the Quinn River spring. A partnership exists with the Deschutes Historical Society to protect and maintain these features.



Conceptual Revitalization Plan for Quinn River and Osprey Point Interpretive Site.

This excellent birding site is listed on the National Geographic Geotourism Map for the Cascades. It is one of Central Oregon’s premier wildlife viewing sites attracting many nesting and migrating birds. Artificial osprey nesting platforms were erected after natural snags toppled over time. Located on Crane Prairie, this relatively shallow reservoir was originally dammed to store irrigation water managed by Central Oregon Irrigation District. Shoreline access is from recreation sites.





Current Interpretation: Osprey Point is an excellent birding site and is listed on the National Geographic Geotourism Map for the Cascades. Artificial osprey nesting platforms were erected on natural snags. There are four interpretive signs at Osprey Point and a second trail connecting to Quinn River Campground with three interpretive signs.

Interpretive Site Design Guidelines: The opportunity exists to rejuvenate and restore the trail system as an accessible interpretive site that offers solitude and also provides group activity access to an outdoor classroom with incredible views. The current interpretive signs require no maintenance and still provide relevant educational value. Rejuvenating some of the interpretive features such as a Cascadian-style orientation kiosk at the trailhead would once again give visitors an overall orientation to the two trails, and a quiet, non-motorized discovery area that could be experienced in larger groups or smaller gatherings.



One of 4 dated interpretive signs at Osprey Point.

Storylines:

History and Cultural Heritage

- Gravesite of Billy Quinn. Billy Quinn was a pioneer sheepman who died in 1894. Existing sign, but dated.
- Cy Bingham tree. Cy Bingham was an early ranger who patrolled the area between Crater Lake and McKenzie Pass. He carved his name and the date in about 20 different trees in this area, one of which still stands near Osprey. Existing sign, but dated.

Geology and Hydrology

- Quinn River spring. Existing sign, but dated.
- Crane Prairie Reservoir dammed in 1920. Existing sign, but dated.

Wildlife and Aquatics

- Utilization of lodgepole pine by wildlife. Existing sign, but dated.
- Types of nests. Existing sign, but dated.
- Osprey life history. Existing sign, but dated.
- The fisherman birds: Just like many of the people at the lakes along the Byway, a number of different wildlife species like to eat fish. Wickiup, Crane Prairie, and Davis Lake Reservoirs are popular fishing spots for people, and also for wildlife. Bald



Cy Bingham marked this tree near the spring at Quinn River.





eagles and osprey are especially common at these lakes since their diets are composed almost exclusively of fish. Both species nest in large trees or snags within a mile or two of a lake or other large body of water.

- e) Raptors: Osprey and bald eagles can be seen fishing in the many lakes, reservoirs, and streams along the Byway, but there are also raptors in these dense forests. Northern goshawks, Cooper's hawks, and sharp-shinned hawks are all incredibly agile flyers—they have to be to fly through these forests, hunting mostly birds and small mammals. The largest, the goshawk, hunts the largest prey, and the smallest, the sharp-shinned hawk, hunts the smallest, including insects. All three species use dense forests, but the sharp-shinned hawk nests in the densest stands, usually with between 400 and 500 trees per acre.
- f) Depending on the season, waterfowl and shorebirds might include Pacific loon, double-crested cormorant, Eurasian wigeon, ring-necked duck, northern shoveler, Barrow's goldeneye, common goldeneye, great blue heron, and greater yellowlegs.
- g) The adjacent forest holds black-backed woodpecker, Williamson's sapsucker, and mountain chickadee.
- h) Especially on summer mornings or evenings, you may glimpse Rocky Mountain elk grazing the lakeside meadows.
- i) Look for American beaver or their stick lodges close to shore.
- j) Bats.

33. Crane Prairie Campground

Proposed future improvements

Site Description: Crane Prairie campground is the largest along the Byway with almost 150 sites and an adjacent resort with restaurant and camp store. Crane Prairie Reservoir is popular for fishing, and is one of the top-producing rainbow trout fisheries in Central Oregon. Rainbow trout here average 2 inches of growth per month during the summer.

Current Interpretation: Ranger-led evening programs have historically been offered in the Crane Prairie Amphitheater.

Interpretive Site Design Guidelines: Ranger-led evening programs, interpretive signs. Relevant topics include invasive aquatic species, lake ecology and lake-associated wildlife, hydrology and dams, and fisheries.

Storylines:

Relevant topics include invasive aquatic species, lake ecology and lake-associated wildlife, hydrology and dams, and fisheries.





Geology and Hydrology

- a) Hydrology and dams.

History and Cultural Heritage

- a) Crane Prairie was a natural meadow in which the Deschutes River, Cultus River, Cold Creek, Quinn River, Deer Creek, and Cultus Creek converged. Crane Prairie Reservoir was first created in 1922 by a rock-filled dam and reconstructed by the Bureau of Reclamation in 1940.

Wildlife and Aquatics

- a) Lake-associated wildlife.
- b) Fisheries and lake ecology.
- c) The inundated trees and five square miles of shallow water, coupled with cool water inlets, make Crane Prairie Reservoir a very rich and productive aquatic system, and osprey, bald eagles, and many waterfowl frequent the area. It is a Wildlife Management Area.
- d) Just like many of the people at the lakes along the Byway, a number of different wildlife species like to eat fish. Wickiup, Crane Prairie, and Davis Lake Reservoirs are popular fishing spots for people, and also for wildlife. Bald eagles and osprey are especially common at these lakes since their diets are composed almost exclusively of fish. Both species nest in large trees or snags within a mile or two of a lake or other large body of water.
- e) Effects of non-native invasive species.

34. Davis Flow/Wickiup Reservoir Arm

Proposed future improvements

Site Description: Heading south along the Byway, visitors cross a small arm of Wickiup Reservoir. The Byway then tracks along the eastern edge of the Davis Flow and climbs up to overlook Davis Lake. Springs contributing to Wickiup Reservoir emerge from the base of the flow.

Current Interpretation: There are currently no interpretive services at this site.

Interpretive Site Design

Guidelines: Interpretive sign on the geology of the lava flow, personal interpretation.



Aerial view of Davis Lake flow.





Storylines:

Geology and Hydrology

- a) The Davis and Black Rock Vents include three small Holocene cinder cones and their lava flows. The alignment, composition similarities, and visual similarities indicate that they all probably erupted during the same eruptive period, about 5,500 years ago.
- b) The northern-most vent erupted the flows that blocked Odell Creek to form Davis Lake. Several springs emerge from beneath this lava flow and contribute to Wickiup Reservoir.

Wildlife and Aquatics

- a) Look for American pika on lava.

35. Davis Lake

Proposed future improvements

Site Description: Davis Lake is a large, shallow lake located at the southern end of Cascade Lakes National Scenic Byway. The 3,000 surface acres of shallow water, coupled with the primary inlet Odell Creek, make Davis Lake a very rich and productive aquatic system. It is one of the most popular fly-fishing-only lakes in the Pacific Northwest, and produces abundant trophy-size rainbow trout. Largemouth bass were illegally introduced in 1995 and appear to be thriving.

East Davis Lake Campground is located on the southern tip of Davis Lake where Odell Creek flows into the lake. This campground is within the 2003 Davis Fire. Many of the trees within the campground survived the fire even though most of the trees surrounding it were killed.

Current Interpretation: There are currently no interpretive services at this site.

Interpretive Site Design Guidelines: Three new interpretive signs on the geological formation of Davis Lake, wildlife habitat, and fisheries will be added (pending funding). Storylines include fire ecology, the geology of the lake, wildlife habitat, fisheries, and invasive aquatic species.

Storylines:

Forest Ecology and Vegetation

- a) Fire ecology, particularly of stand-replacement fires.
- b) Forest succession following fire.

Geology and Hydrology

- a) Formation of Davis Lake.
- b) Prior to the volcanic eruption, it is likely that Odell Creek was directly connected to the upper Deschutes River.





History and Cultural Heritage

- a) The name Davis is taken from "Button" Davis, a 19th-century stockman from the Prineville area who ran cattle in the vicinity of the lake.

Wildlife and Aquatics

- a) Wildlife species dependent on stand-replacement fires, and species that lost habitat.
- b) Fisheries.
- c) Effects of non-native invasive species.
- d) It's possible to identify 40-50 animal species here on a spring day.
- e) Rocky Mountain elk are seen along the west shore. The southwest end of the lake is designated as a Key Elk Habitat Area.

36. Davis Lake Wayside

Recent improvements (2013)

Site Description: This is a scenic viewpoint with a pullout for parking. The Davis Fire of 2003 is visible from the viewpoint, as are Maklaks Mountain, Maiden Peak, Ranger Butte, and Cultus Mountain.

Current Interpretation: Three new interpretive signs were installed in 2013 that describe the Mazama eruption and aftermath, Native American food sources, and the role of fire in nature with a story on the 2003 Davis Fire.

Interpretive Site Design

Guidelines: Maintain integrity and condition of the interpretive signs and update or replace when damaged or missing.

Storylines:

Geology and Hydrology

- a) Mt. Mazama eruption and effect of pumice heating and cooling on vegetation. Existing sign.



Heritage, geology and fire ecology interpretive signs overlooking 2003 Davis Fire area.





History and Cultural Heritage

- a) This sustainable ecosystem has been used and managed for centuries by people we now know as Klamath, Modoc, Paiute, Tygh, Molalla, Upper Umpqua, and Warm Springs Indians. The resources at Davis Lake were “nature’s market,” and included plants, animals, medicine, containers, and volcanic rock for tools. Existing sign.

Wildlife and Aquatics

- a) A variety of woodpeckers can be seen along the Byway, but often in different types of forests. Some species, such as white-headed woodpeckers, are often seen in old-growth forests, while others prefer recent stand-replacement fires. After a stand-replacement fire, black-backed woodpeckers are among the first to arrive. After a few years, they are replaced by three-toed woodpeckers. And later yet, after the snags have become soft from decomposition, Lewis’ woodpeckers may use the area.
- b) Black-backed and three-toed woodpecker life histories.

Forest Ecology and Vegetation

- a) Relationship of plants to geology—impacts of pumice on temperature and tree seedling survival.
- b) The Davis Lake fire, fire ecology, and succession. Sign to be installed 2011.

37. South Gateway Scenic Byway Interpretive Site

Recent improvements (2004-2009)

Site Description: A small wayside pullout with interpretive signs providing orientation to the Scenic Byway.

Current Interpretation: Five interpretive signs were installed in 2009. These same five signs are also located at the North Gateway. Topics include native plants, forest management, Native American heritage, and wildlife. Copies of these same five signs are also located at the South Gateway to the Byway.

Interpretive Site Design Guidelines: Continued maintenance. Install station with brochure available for pickup.

Storylines:

Visitor Orientation

- a) Basic information and map of Byway. Sign installed 2009.
- b) Map and brochures.





Geology and Hydrology

Basic orientation to geology of the Cascades. For tens of millions of years, the Cascade Range has been influenced by the subduction of oceanic plates off the coast of Oregon. This subduction provides the mechanics of heat and motion that have slowly built up the mountain range. The successive layering of lava flows and ash deposits, combined with the powerful erosional activity of glaciers and rivers during the last few million years, has resulted in the smooth topography of the eastern slopes of the Cascades, now dotted with volcanoes of various sizes.



Interpretive signs orient and greet visitors as they enter the Byway from the south.

History and Cultural Heritage

Ceded lands and ancient trade routes. Sign installed in 2009.

Wildlife and Aquatics

Who's watching who? Deer and elk graze in meadows and bald eagles nest in trees. Other wildlife such as black bear, beaver, river otter, marten, mink, and frogs are more hidden. Look for their tracks, trails, chew marks, burrows, and scat. Sign installed in 2009.

Forest Ecology and Vegetation

Native plants are here because they have what they need to cope with conditions. Each species has an intriguing story to tell as it relates to this landscape. Sign installed in 2009.

Forest/Resource Management

We're putting the 'scene' back in scenic. Sign installed in 2009.

East Gateways to Byway (Forest Roads #40, #42, #43, and #61)

These interpretive sites are located along key access roads that are gateways to the Byway east from Highway 97, and from the communities of Sunriver, LaPine, Gilchrist, and Crescent.





38. Browns Creek Spawning Site

Proposed future improvements

Site Description: Browns Creek is a tributary of Wickiup Reservoir, and is located along Forest Road 42.

Current Interpretation: Kokanee Karnival, a youth-education program cooperatively implemented by multiple groups, includes hands-on activities, observing Kokanee salmon spawning on Browns Creek, and self-discovery.

Interpretive Site Design Guidelines: Accessible fish-viewing platform, two interpretive signs, and continued support of Kokanee Karnival.

Storylines:

Wildlife and Aquatics

- a) Browns Creek provides excellent spawning habitat for Kokanee and excellent spawning and rearing habitat for brown trout.
- b) Kokanee salmon and brown trout migrate from Wickiup Reservoir to the river in September.
- c) Stream restoration to improve fishery habitat and water quality.

39. Browns Mountain Crossing

Improvements currently in progress

Site Description: Accessible from Forest Road 42, this is a site on the Deschutes River with off-road parking and an over-water ADA-accessible fish-viewing platform. It is on the south side of a concrete bridge that spans the Deschutes River.

Current Interpretation: There are two existing interpretive signs about fish and wildlife, but both are damaged. Replacement signs were installed in 2010.

Interpretive Site Design Guidelines: Continued maintenance.



Fish-viewing platform at Browns Mountain Crossing on the Deschutes River.



Storylines:

Wildlife and Aquatics

- a) Life from death: Bald eagles prepare for the long and harsh winter by gorging on Kokanee salmon. The concentration of spawning fish entices bald eagles and osprey to hunt for an easy meal. Existing sign, replaced in 2010.
- b) Habitat restoration for fish has included adding woody debris and fallen trees into the river.
- c) Watch for American dipper and common merganser that fly up and down the river.
- d) Streamside wildflowers attract several species of hummingbird, including black-chinned, calliope, and rufous.

40. Twin Lake Maars and Wickiup North Arm

Proposed future improvements

Site Description: There are multiple sites within this area, including Twin Lakes Resort on South Twin. The resort includes a lodge, general store, restaurant, cabins, and boat rentals. There are also several campgrounds and day-use sites. A 1-mile trail loops around South Twin, and connects with a trail to North Twin.

Current Interpretation: The Lewis Roth Dwarf Mistletoe Trail at North Twin is a brochure-guided interpretive trail, but brochures are not always readily available.

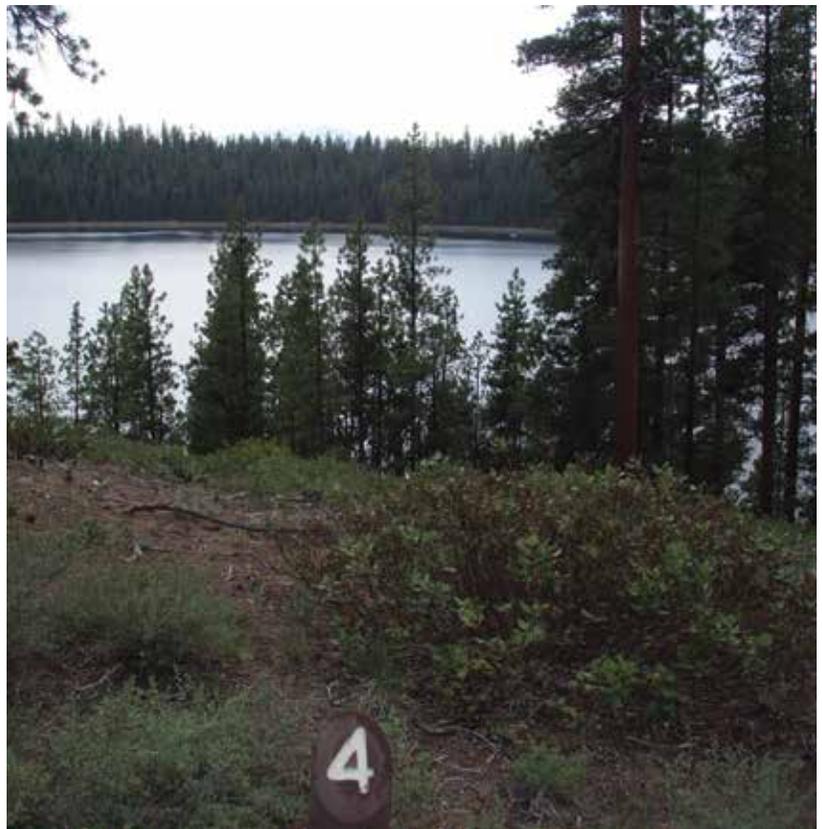
Interpretive Site Design

Guidelines: Trail brochure could be available online for visitors to download prior to their visit. Add interpretive signs and personal interpretation at Twin Lakes Resort. Partnerships with the resort and campground hosts to provide brochures and maps.

Storylines:

Geology and Hydrology

- a) Volcanic maars. Both North and South Twin Lakes are within the craters of volcanic maars. These craters were formed about 20,000 years



A stop along the Lewis Roth Dwarf Mistletoe Trail, a brochure-guided interpretive trail at North Twin Lake.





ago when rising magma encountered groundwater, resulting in violent steam explosions. These explosions formed the broad shallow craters which subsequently filled with water.

- b) Only about 1/10 of a mile of land separates South Twin Lake from the Deschutes River. The Deschutes flows south past Twin Lakes, then enters Wickiup Reservoir; after leaving the reservoir, the Deschutes River begins flowing north, eventually flowing into the Columbia River.



Aerial view of Twin Lakes.

Wildlife and Aquatics

- a) Fisheries and insects.
- b) Introduced aquatic species.

Forest Ecology and Vegetation

- a) Dwarf mistletoe and forest health.

41. Wickiup Dam

Recent improvements (2004-2009)

Site Description: Wickiup Reservoir is extremely popular for fishing. Started in 1939, Wickiup Dam was completed in 1949. Located along the Deschutes River, it is the second irrigation reservoir on the Deschutes, about six miles downriver from Crane Prairie Reservoir. It experiences extreme water fluctuations due to irrigation drawdowns, and over half of the reservoir's water can disappear over the fishing season. The character of the shoreline at Wickiup is as variable as the water level. It is the largest of all the Cascade Lakes, and, at full pool, is a beautiful, pine-edged lake covering 10,000 acres, with some willows and sandy beach areas. At low water, steep soil and gravel banks drop abruptly to the water. Other banks become mucky hazards.

Current Interpretation: There are currently three new interpretive signs describing the history of the dam, Oregon's last big log-drive, bald eagle habitat, and creation of new homes for Oregon spotted frogs.



Interpretive signs overlooking Wickiup Reservoir and Dam.



Interpretive Site Design Guidelines: Continued maintenance.

Storylines:

Geology and Hydrology

- a) Hydrology and effects of dams.

History and Cultural Heritage

- a) This area was once a camping area for Native Americans during the fall.
- b) Oregon's last big log-drive. Current sign.

Wildlife and Aquatics

- a) Obstacles emerge at low water, including many stumps and structures added in the Deschutes and Davis arms by ODFW.
- b) Bald eagle life history and habitat. Existing sign.
- c) Creation of new homes for Oregon spotted frogs. Existing sign.

Forest/Resource Management

- a) Dams and Reservoirs.

42. Round Mountain Lookout

Proposed future improvements

Site Description: Built in 1932, the lookout sits on top of lava boulders at the top of a cinder cone. It is currently an active lookout in the summer. It is on the list of sites for the Three Sisters Loop of the Oregon Cascades Birding Trail. A USGS benchmark is near the lookout, and it is on geocaching.com as an Official Global GPS Cache Hunt Site. It is also on the Round Mtn./Lookout Mtn. mountain biking trail route.

Current Interpretation: There are currently no interpretive services at this site.

Interpretive Site Design Guidelines: Interpretive signs at the lookout.

Storylines:

History and Cultural Heritage

- a) History of the lookout and fire-fighting.
- b) USGS benchmarks.

Forest Ecology and Vegetation

- a) Mixed conifer ecology.





Wildlife and Aquatics

- a) Birds—northern spotted owl, blue grouse, pileated woodpeckers, hermit thrush, warblers, and Cassin's vireo.

Geology and Hydrology

- a) Cinder cones and the surrounding geology.

43. Fall River Guard Station

Recent improvements (2015)

Site Description: Built in the 1930s by the Civilian Conservation Corps (CCC), the Fall River Guard Station is in the Cascadia style of the Pacific Northwest Region. This single-story cabin is approximately 600 square feet and sits within a lodgepole pine forest at the picturesque headwaters of Fall River. The cabin was originally used as an outpost to fight forest fires and was nominated for the National Historic Register. The guard station is currently available for overnight rental by the public.

Current Interpretation: New interpretive sign was added in 2015.

Interpretive Site Design Guidelines: Brochure for renters on the history of the station, the CCC, and fire-fighting.



Fall River Guard Station being renovated in 2005.

Storylines:

History and Cultural Heritage

- a) History of the station, the CCC, and fire-fighting.

Forest Ecology and Vegetation

- a) Lodgepole pine ecology.

Wildlife and Aquatics

- a) Cool, clear, spring-fed streams provide habitat for various native fish and other aquatic organisms.

Geology and Hydrology

- a) The porous volcanic landscape acts as a sponge-like conduit for an elaborate groundwater system, holding a tremendous volume of water that is released slowly and consistently.





44. Fall River Fish Hatchery

No currently proposed improvements

Site Description: The Fall River Fish Hatchery was originally constructed in 1929, but has since had numerous improvements. It is a very attractive visitor-oriented hatchery with interpretive signs and access to Fall River for fishing. The ODFW Fall River Operations Plan 2009 cites 20,000 annual visitors. The hatchery produces legal-sized rainbow trout and provides fingerling rainbow, brook, and cutthroat trout for air-stocking programs throughout the state.

Current Interpretation: There are a number of interpretive signs, and the hatchery is well designed for visitor use.

Interpretive Site Design Guidelines: Coordinate with hatchery managers, provide support as needed.

Storylines:

Wildlife and Aquatics

- a) Fisheries.
- b) Hatchery management.

45. Wake Butte

Proposed future improvements

Site Description: Wake Butte is part of a 3-mile-long chain of basaltic tuff rings. There is a half-mile scenic loop hike through ponderosa pine forest.

Current Interpretation: Self-discovery.

Interpretive Site Design Guidelines: Self-discovery, interpretive signs, or brochures.

Storylines:

Geology and Hydrology

- a) Wake Butte originated from a 3-mile long fissure trending northwest Is where magma erupted into groundwater some 12,000 to 15,000 years ago, creating what is known as a basaltic tuff ring. It runs near parallel to the Mt. Bachelor chain and is most likely associated with it.
- b) For tens of millions of years, the Cascade Range has been influenced by the subduction of oceanic plates off the coast of Oregon. This subduction provides the mechanics of heat and motion that have slowly built up the mountain range.
- c) The successive layering of lava flows and ash deposits, combined with the powerful erosional activity of glaciers and rivers during the last few million years, has resulted in the smooth topography of the eastern slopes of the Cascades, now dotted with volcanoes of various sizes.





These geologic processes are constantly in motion, but to the casual observer are very static and unmoving.

- d) The lava flows, cinder cones, and layers of ash are like ancient clock hands frozen in time. They are the markers for the geologic history and give geologists clues into the history and age of this volcanic landscape.
- e) As these various rocks weather and decompose they create soil, which provides nutrients for the plants and trees and habitat for animals.
- f) Powerful explosions occurred when magma rising close to the earth's surface encountered water and created Fort Rock, Twin Lakes, Hole-in-the-Ground, Fort Rock, and Big Hole, and Wake Butte.
- g) Wake Butte was formed through an explosive interaction of rising basaltic magma and permeable aquifer or abundant groundwater which caused rock fragmentation and finer-grained pyroclastic and ash materials to erupt and settle into the landform we see today. IN the absence of groundwater, we see cinder cones and lava flows. On top of the butte, soils are sparse in nutrients and water holding capacity so the south side is dry and supports ponderosa pine plant communities and ancient junipers (some may be older than 400 years old). The north side is wetter and a mixed conifer plant community is supported with true firs.

Forest Ecology and Vegetation

- a) Ponderosa pine ecology

46. Turn-of-the-Century Forest

Recent improvements (2010)

Site Description: This site is located off of Forest Road 43 (Burgess Road), and is dominated by ponderosa pine forest. There are a number of old-growth ponderosa pines clearly visible from the site. There is a small loop drive with interpretive signs describing different types of forest management. It is near Pringle Falls Research Natural Area.

Current Interpretation: Small loop drive with four damaged interpretive signs, which compare different age forests and methods of forest management. Current signs are highly damaged and difficult to read as a result.

Interpretive Site Design Guidelines:

Replacement signs were installed in 2010. In future, update text on wildlife to include species that utilize each type of forest.



New interpretive signs were installed in 2010 to replace badly damaged signs.



Storylines:

Forest Ecology and Vegetation

- a) Fire ecology of ponderosa pine forests.

Forest/Resource Management

- a) Comparison of All-Ages, Same-Age, and Turn-of-the-Century Forest (4 signs were re-installed in 2010).
- b) Controlled burns and forest thinning to mimic historic stand conditions and reduce the threat of wildfire.
- c) Recent forest management activities are evident throughout the Cascade Lakes area. These activities include vegetative treatments and prescribed fire, both to prevent destruction of unique plant and animal habitats and to enable natural fire to again occur at historical sizes and intensities.
- d) Logging. History and current practices.

Wildlife and Aquatics

- a) Types of wildlife that use different types of forests.

Climate Change

- a) Our National Forests function as carbon sinks, absorbing more carbon than they release, and thereby reducing the buildup of greenhouse gases. The main place that carbon is stored, however, isn't the trees—it is actually in the soils.
- b) There are ongoing efforts to protect the ecosystem through restoration efforts, scientific research, management activities, and sustainable land stewardship.

47. Cascade Lakes Scenic Byway Tour of Interpretive Sites Brochure

Recent improvements (2004-2009)

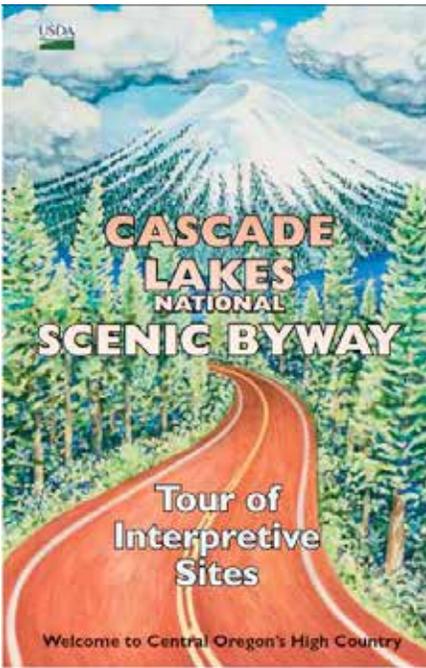
Current Interpretation: Updated old brochure with a new publication completed in fall 2009. It includes a map and history of the Byway, details about many of the interpretive sites, campgrounds, and day-use areas.

Interpretive Site Design Guidelines: Post brochure on Byway and Forest websites with expanded online version. Continue to distribute this new Byway publication to Byway partners and other outlets.

Storylines:

The primary intent of this brochure is visitor orientation. It includes a map of the Byway, locations and information about key interpretive sites, and logistical information about each lake, including a description and list of available amenities.





The Cascade Lakes

Tenmile Lake

A short walk from the parking area will take you to a small spits lake nestled within a protected and peaceful forest setting tucked by mountain slopes. A plethora of wildflowers color the meadows along through Mt. Waialeale. Only camp sites have no drinking water.

Activities: Hiking, Fishing, Boating, Camping, Picnicking, Birdwatching, Photography, Snowshoeing, Cross-country Skiing, Ice Skating, Winter Sports, Snowmobiling, Snowshoeing, Snowmobiling, Snowshoeing, Snowmobiling, Snowshoeing, Snowmobiling.

Squaw Lake

Most loved by Ray Anderson, Oregon's photographer laureate, wildlife is abundant spring from lava formations, surrounded by water. Known for its peaceful setting and inspiring the views as a photographer's dream with geological formations to be made on the Ray Anderson Memorial Trail. Camp sites have no drinking water.

Activities: Hiking, Fishing, Boating, Camping, Picnicking, Birdwatching, Photography, Snowshoeing, Cross-country Skiing, Ice Skating, Winter Sports, Snowmobiling, Snowshoeing, Snowmobiling, Snowshoeing, Snowmobiling.

Elk Lake

This is the ultimate gathering place for those who love to be on or on the water. The view to Mt. Bachelor and South Sister are incredible and Elk Lake Resort is open year-round for both summer and winter recreation activities.

Activities: Cabin, Restaurant, Grocery Store, Boat Rental, Gas, Trout Hatchery, Canoe, Fishing Boats (rental).

Little Calf Lake

Little Calf Lake provides a healthy outdoor experience. Located in the shadow of Calf Mountain this is a great place to escape to. Camp sites have no drinking water.

Activities: Hiking, Fishing, Boating, Camping, Picnicking, Birdwatching, Photography, Snowshoeing, Cross-country Skiing, Ice Skating, Winter Sports, Snowmobiling, Snowshoeing, Snowmobiling.

Lava Lake and Little Lava Lake

Lava Lake is known for its trout which provides supplies for summer camping and fishing expeditions. Little Lava Lake is the source of the Wild & Scenic Deschutes River.

Activities: 36' Boat, Lodge, Grocery Store, Gas, Rentals at Lava Lake: Canoes, Fishing Boats (rental).

Crescent Lake

Was created in 1922 for irrigation purposes, this reservoir has become a popular boating and fishing destination. During spring migrations a high concentration of waterfowl can be seen. The Camp Fire Resort has had an interesting history with some high profile visitors.

Activities: 36' Boat, Lodge, Grocery Store, Gas, Rentals: Fishing Boats (rental).

North & South Twin Lakes

These twin lakes are symmetrical in shape and about 40 feet deep. They are unique geological formations formed as volcanic flows. North Twin has a unique geological formation known as volcanic flows. North Twin has a unique geological formation known as volcanic flows.

Activities: Fishing Boats (rental).

Deer Lake

The large shallow lake was formed about 4,000 years ago when a large lava flow out of Oldf Creek. Historically known for large rainbow trout, there is currently no lake as large as this at this popular fishing lake. The area experienced a large fire in 2003.

Activities: Fishing Boats (rental).

Legend:

Hiking trail	Boat for fishing	Fishing by boat
Drinking water	Drinking water	Drinking water
Boat	Boat	Boat
Boat	Boat	Boat

caption here since on next page???

48. Cascade Lakes Scenic Byway Audio Tour and Apps

Proposed future improvements

Current Interpretation: Audio tour tape is no longer available.

Interpretive Site Design Guidelines: Podcasts could be created for drivers to listen to either as driving, or at individual stops. Apps could be provided for iPhones and iPads.





49. Cascade Lakes Scenic Byway Websites, QR Codes and Apps

Proposed future improvements

Current Interpretation: Current Interpretation: Information currently available on websites for National Scenic Byways (<http://www.byways.org/explore/byways/2144>) and for the Deschutes National Forest (<http://www.fs.fed.us/r6/centraloregon/recreation/special/byways/caslakes.shtml>).

Interpretive Site Design Guidelines: Additional website development with links to other sites, downloadable maps, videos, and podcasts. Continue updating and include QR codes and apps for iPhones and iPads.

50. Central Cascades Geotourism Site

Proposed future improvements

Current Interpretation: Information currently available through the National Geographic Central Cascades Geotourism Project website at www.thecentralscascades.com.

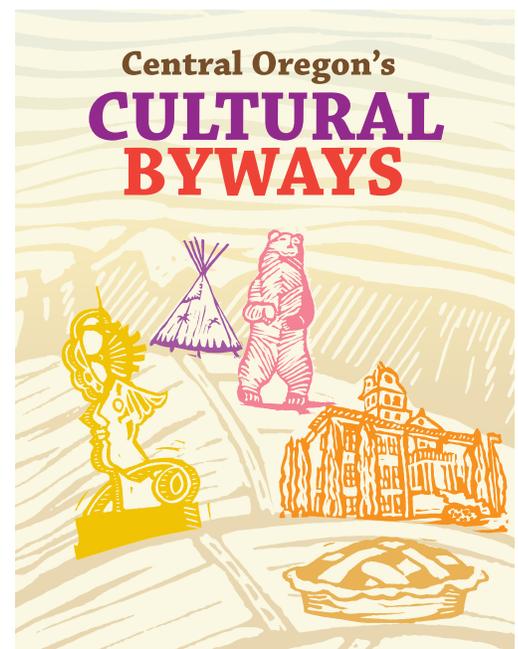
Interpretive Site Design Guidelines: Continue to capitalize on this online marketing tool by providing updates on Scenic Byway cultural tourism events and site improvements.

51. Central Oregon's Cultural Byways Brochure

Recent improvements (2013)

Current Interpretation: This brochure presents art, music, history, and tradition in Central Oregon in communities connected by Scenic Byways and Bikeways and Cultural Coalitions through the Oregon Cultural Trust. Other partners include the Oregon Arts Commission, Arts Central, The Museum at Warm Springs, and Central Oregon Visitors Association.

Interpretive Site Design Guidelines: Strengthen partnerships by promoting each others cultural tourism events and communication efforts. Update and Reprint through grants and partnerships.





Chapter V: AUDIENCE ANALYSIS AND COMMUNITY OUTREACH

Most of the 2.78 million annual visitors to the Deschutes National Forest come to enjoy its incredible viewpoints, volcanic wilderness, forested lakes, wild and scenic rivers, national monument, and National Scenic Byway. It is internationally known as one of the most popular recreational forests in the Pacific Northwest, with the largest variety of volcanic formations in the lower 48 states. The population surrounding the Deschutes National Forest is less than 200,000 people, and Bend, the largest city in Central Oregon and one of the rural gateway communities to the Cascade Lakes National Scenic Byway and the Deschutes National Forest, has a population of about 80,000 people.

Outdoor recreation has always been a main focus for tourism in Central Oregon. People have long been attracted to the sun-drenched mountain town of Bend, located at the foot of the Cascade Mountain Range, a jumping-off point—via the Cascade Lakes National Scenic Byway—to the Deschutes National Forest for skiing, snowboarding, kayaking, rafting, fishing, hiking, boating, hunting, mountain and road biking, golfing, and sightseeing. The backdrop of snowcapped mountains, sparkling rivers, alpine lakes, and towering ponderosa pine forests, amid a volcano wilderness on the high desert, are some of the top reasons why people migrate to this special place at the heart of Oregon.

On a national level, National Forest visitors were surveyed on which activities they participated in, and the activities most cited were: viewing natural features, viewing wildlife, and hiking/walking, followed by relaxing and driving for pleasure. When surveyed about the use of constructed facilities, including museums and visitor centers, trails, and forest roads, visitors reported using Scenic Byways on more visits than any other facility.

In the summers of 2008 and 2009, RCC Research of Boulder, Colorado, conducted two surveys for Visit Bend, a local tourism agency (www.visitbend.com): the Bend General Summer Visitor Intercept Survey and the VisitBend.com Website Survey. The Intercept Survey was conducted at locations throughout Bend. The majority of visitors listed leisure/sightseeing and outdoor recreation as the primary purposes of their trip. Visitors interested in these activities were most likely to use the Cascade Lakes Scenic Byway. The surveys did not include permanent, year-round residents of Bend, however, and Bend residents are frequent users of the Scenic Byway.

The findings of the surveys suggest that approximately 60 percent of visitors were from out of state, primarily California, followed by Washington. About 6 percent of visitors were from other countries. Most of the visitors from Oregon were from Portland, Eugene, and Medford/Klamath Falls areas. Many visitors came with families, followed by childless couples, and then empty-nesters. The median age of visitors was 49 years old, and median family income was approximately \$87,500.

For overnight visitors, an average stay was 4 nights, with in-state visitors averaging 3 nights, and visitors from California and Washington averaging 4.9 nights. Eighteen percent of the overnight visitors stayed with friends or family, 14 percent camped, 12 percent stayed in their own home or time-share accommodations, and the rest stayed in hotels, motels, rental homes, or condos. Most visitors (66 percent) arrived in private vehicles.





With leisure and sightseeing (45 percent) and outdoor recreation (42 percent) as the main reasons for visiting Bend, responses to what visitors wanted to see in Bend were especially relevant to the Scenic Byway. These included better hiking information, trail maps, more bicycle trails, and safer or wider bike paths and lanes. For trip planning, websites were at the top of the list, although the Deschutes National Forest and America's Byways websites were not included as sites most frequently used.

Community Outreach

During the summer of 2008, a questionnaire was distributed by Forest Service Field Rangers to visitors at recreation sites along the Byway to begin gathering ideas and feedback for current and future information and interpretive facilities on the Cascade Lakes Scenic Byway. In the summer of 2009, a questionnaire was distributed to recreation professionals, including concessionaires, resort owners, special permit guides, and campground hosts. An additional questionnaire was distributed to Byway visitors by volunteer interpretive naturalists at the Elk Lake Guard Station. The public was also providing feedback through the Visit Bend website.

Respondents provided input on subjects and sites of interest, types of interpretation preferred, general comments, and concerns about visitor use. The returned questionnaires indicated a strong interest in geology, forest ecology, and cultural and natural history. Respondents wanted to know more about the area in which they are recreating, and are concerned about long-term forest health and protection (see summary of questionnaires).

Several newspaper articles in *The Bend Bulletin* solicited additional community involvement. An article on the proposed Scenic Byway Welcome Station appeared in *The Bulletin* on June 12, 2009. The project was described and the public was invited to give comments as part of the scoping process for the Environmental Assessment. An earlier article appeared in *The Bulletin* on December 12, 2008, when the Deschutes National Forest received a grant from the Federal Highways Administration for Phase I, which included funds for planning and community involvement for the proposed Welcome Station.

A front-page article appeared in *The Bulletin* on November 23, 2009, inviting the community to a Scenic Byway Open House and Cultural Tourism Event to be held on December 1, 2009. The article described the importance of the Byway to the community for tourism and conservation education in order to protect its valuable natural resources. There were about 80 attendees at the Scenic Byway Open House, where Forest Service staff and Byway volunteers answered questions and documented ideas from the community. Input included circulation of a SurveyMonkey questionnaire that could be answered at the Open House or online. There were over 100 responses to the questionnaire, as summarized in the following graphs.

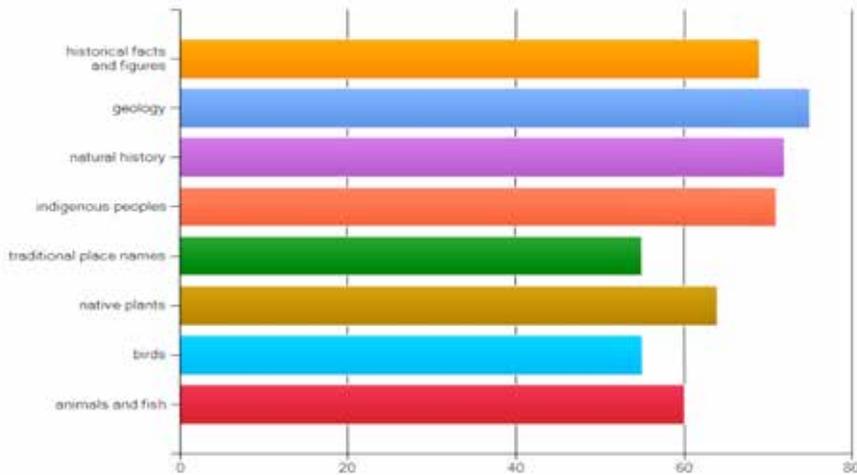




Appendix A: SCENIC BYWAY COMMUNITY IDEAS QUESTIONNAIRE RESULTS

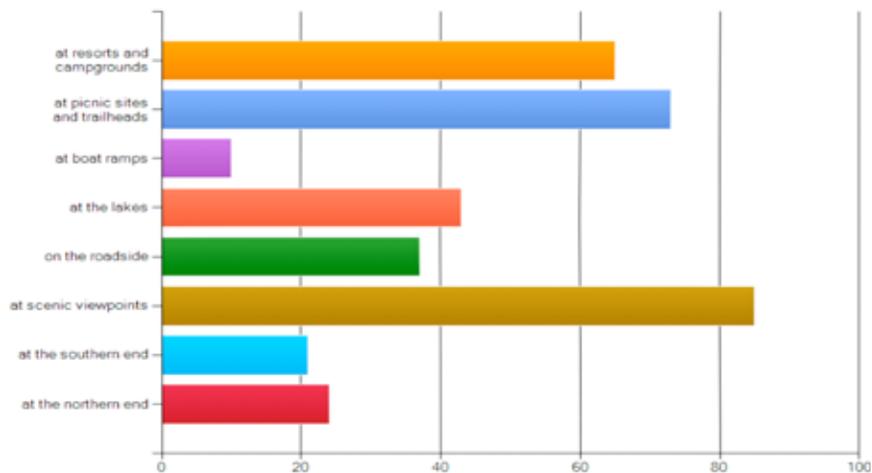
Scenic Byway Community Ideas Questionnaire Results

What specific lessons would you like to learn about the Cascade Lakes area? Choose all that apply. I am interested in learning about:



Scenic Byway Community Ideas Questionnaire Results

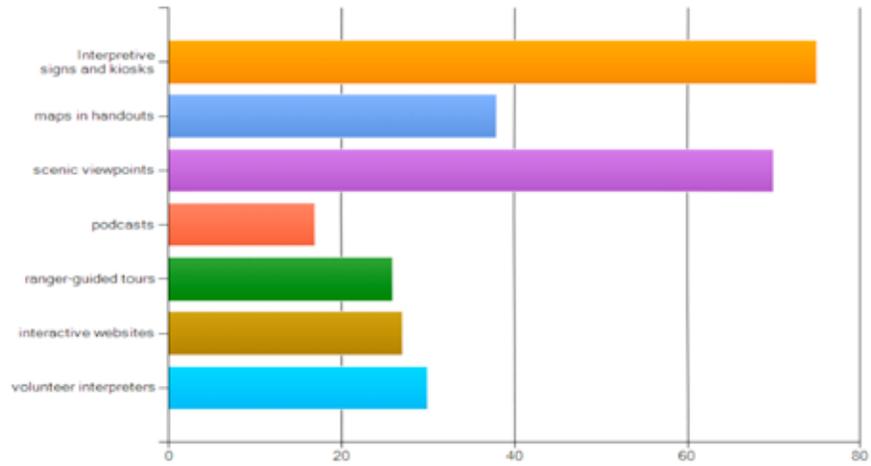
Where along the byway would you like to see interpretation? Choose all that apply. I would like to see interpretation:





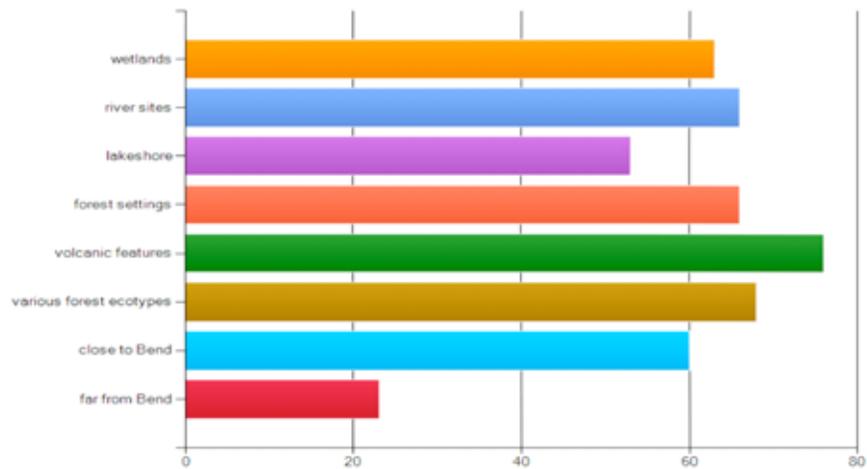
Scenic Byway Community Ideas Questionnaire Results

What kind of interpretation would you like to see along the byway? Choose all that apply. The byway needs more:



Scenic Byway Community Ideas Questionnaire Results

What kind of learning opportunities would you like to see for the schools? Choose all that apply. The byway needs outdoor classrooms and field laboratories at:





Appendix B: INVENTORY OF CURRENT INTERPRETATION

As part of the Corridor Management and Interpretive Plan update in 2014, an inventory of existing interpretation along the Byway was conducted. This appendix contains images of interpretive signs, brochures, and online interpretation currently provided, or scheduled for installation in 2015. These images are organized by site number as listed in Chapter IV of the Cascade Lakes National Scenic Byway Corridor Management and Interpretive Plan.

List of sites with interpretive signs or brochures:

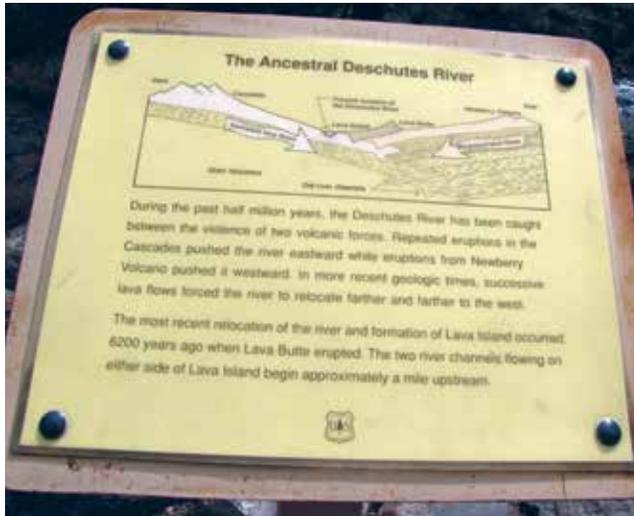
2. Cascade Lakes Welcome Station
3. Deschutes River Trail
5. North Gateway Scenic Byway Viewpoint
7. Wanoga Day-Use Area
9. Kapka Butte Sno-Park
10. Mt. Bachelor Ski and Summer Resort
12. Todd Lake
13. Soda Creek Interpretive Site
14. Ray Atkeson Memorial Trail at Sparks Lake
15. Sparks Lake Boat Ramp
16. Sparks Meadow Wayside
18. Ray Atkeson Memorial Photopoint Wayside
20. Devils Lake Wayside
22. Elk Lake Guard Station
24. Elk Lake Viewpoint #1
25. Elk Lake Viewpoint #2
27. Little Lava Lake: Headwaters of the Deschutes River
28. Wayside Fen
32. Quinn River & Osprey Point Interpretive Site
36. Davis Lake Wayside
37. South Gateway Scenic Byway Interpretive Site
39. Browns Mountain Crossing
40. Twin Lake Maars and Wickiup North Arm Brochure
41. Wickiup Dam
43. Fall River Guard Station
46. Turn-of-the-Century Forest
47. Cascade Lakes Scenic Byway Tour of Interpretive Sites Brochure
49. Cascade Lakes Scenic Byway Website, QR Codes and Apps
50. Central Cascades Geotourism Site
51. Central Oregon's Cultural Byways Brochure



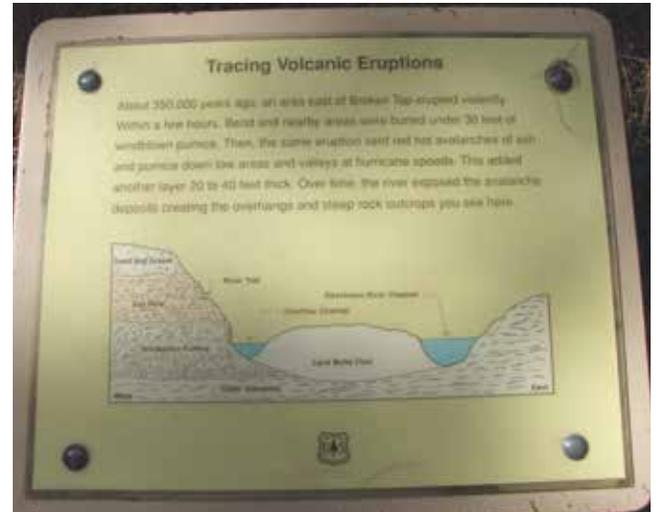


3. Deschutes River Trail

There are currently 25 interpretive signs along the Deschutes River Trail traveling upstream between Meadow Camp Trailhead 40 and Benham Falls day-use area. The following signs are numbered according to their location with signs further upstream having the highest numbers.



Deschutes River Trail, Sign 1 of 25.



Deschutes River Trail, Sign 2 of 25.



Deschutes River Trail, Sign 3 of 25. This sign is located at a rockshelter adjacent to the trail.



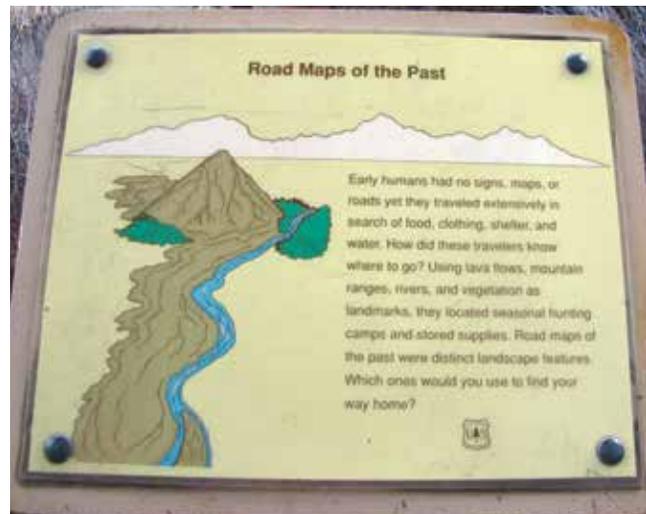
There is a cluster of three interpretive signs at a scenic overlook along the trail downstream from Lava River Falls Trailhead.



Deschutes River Trail, Sign 4 of 25.



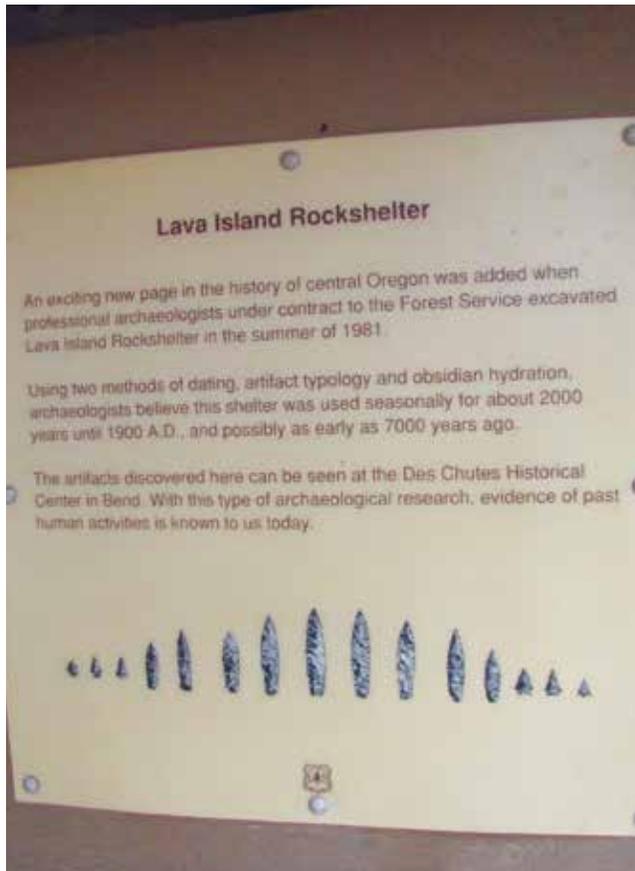
Deschutes River Trail, Sign 5 of 25.



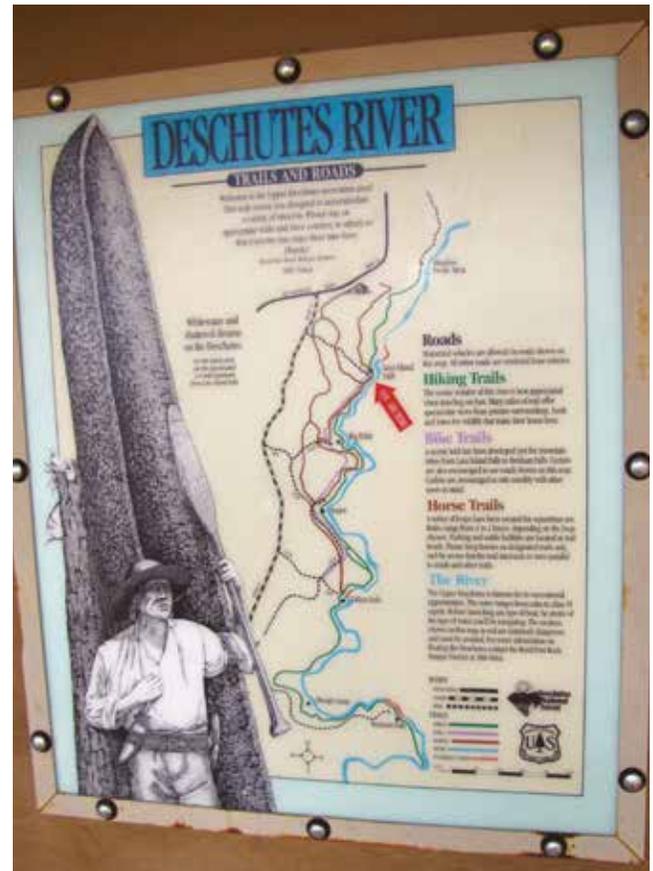
Deschutes River Trail, Sign 6 of 25.



There are two interpretive signs at the Lava River Falls Trailhead.

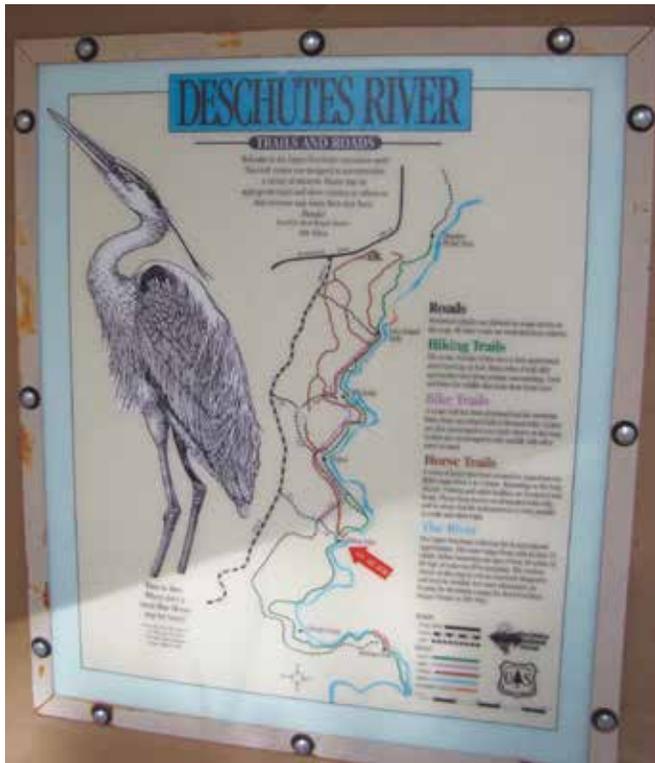


Deschutes River Trail, Sign 7 of 25. One of two signs at Lava River Falls Trailhead.



Deschutes River Trail, Sign 8 of 25. One of two signs at Lava River Falls Trailhead.

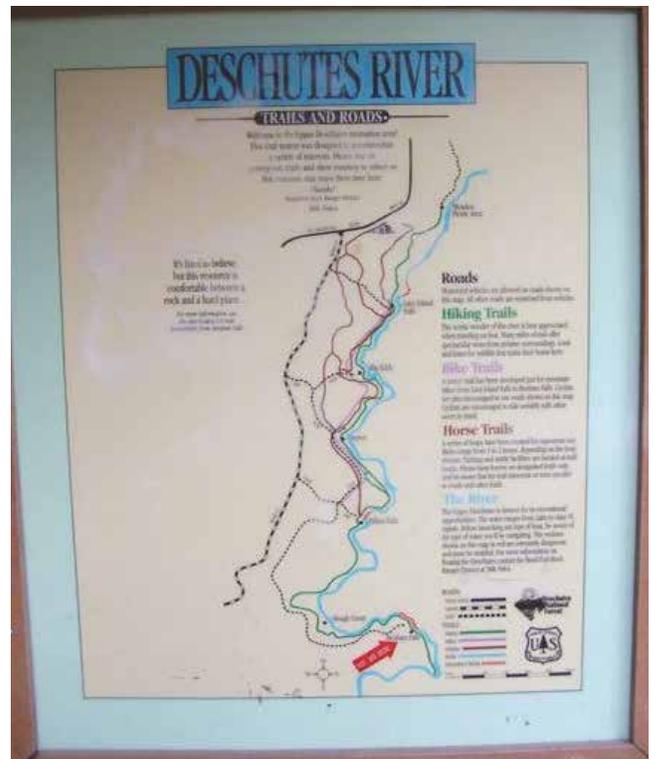




Deschutes River Trail, Sign 13 of 25. Located at Dillon Falls Trailhead.



Deschutes River Trail, Sign 14 of 25.



Deschutes River Trail, Sign 15 of 25. Located at Benham Falls Trailhead.

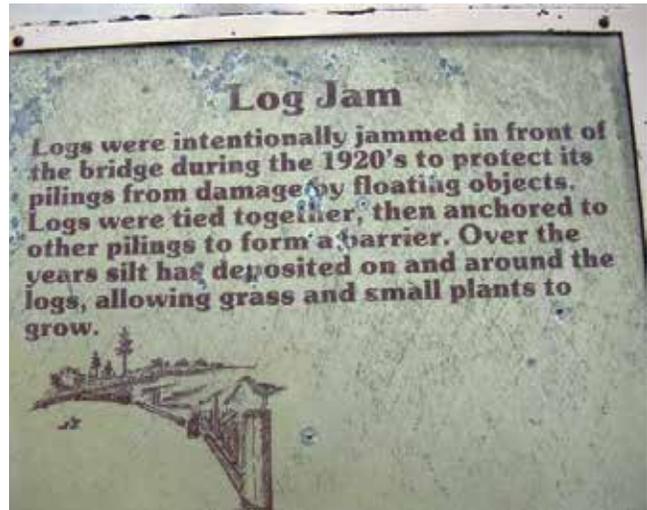




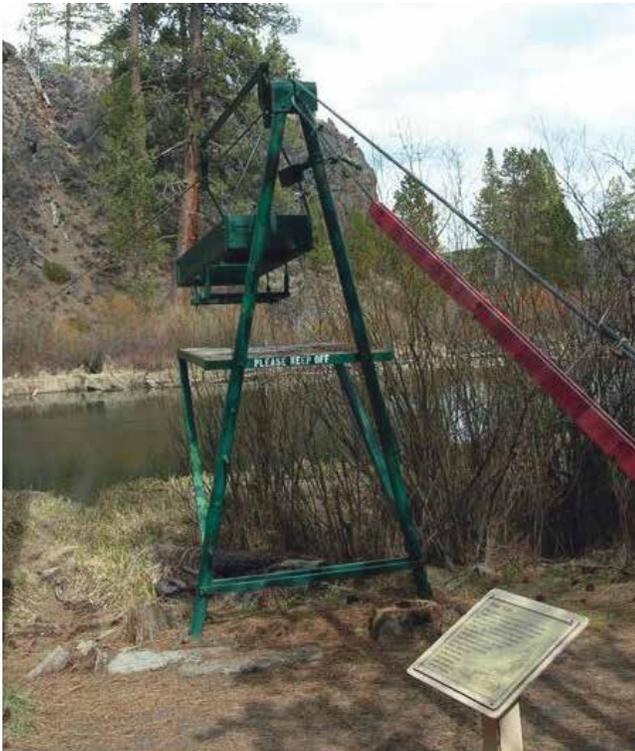
Deschutes River Trail Signs 16-25 are located along the interpretive loop trail upstream from the southern Benham Falls parking area.



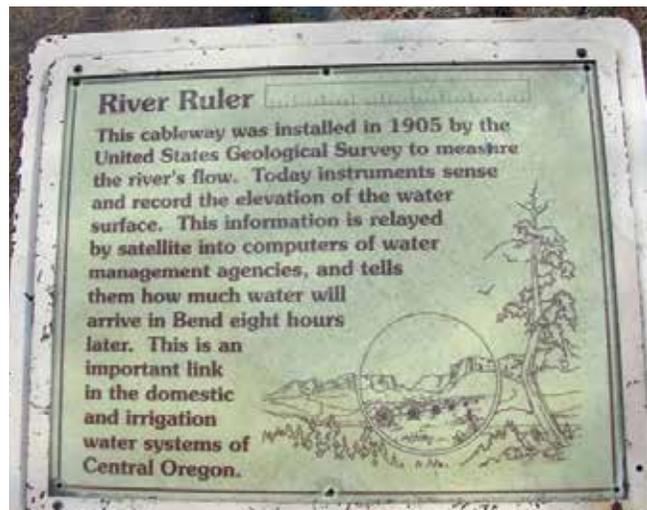
Deschutes River Trail, Sign 16 of 25.



Deschutes River Trail, Sign 17 of 25.



Deschutes River Trail, View of Sign 18 of 25.

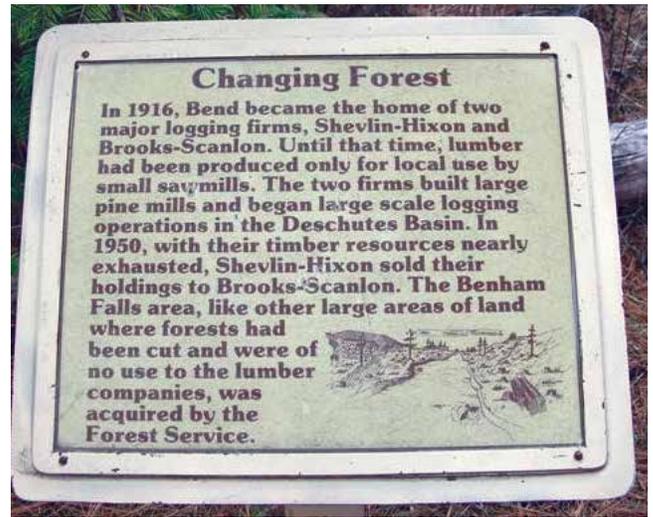


Deschutes River Trail, Sign 18 of 25.

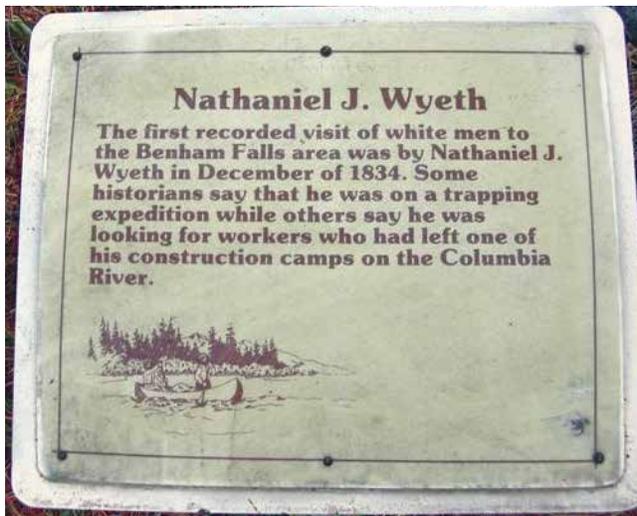




Deschutes River Trail, Sign 19 of 25.



Deschutes River Trail, Sign 20 of 25.



Deschutes River Trail, Sign 21 of 25.



Deschutes River Trail, Sign 22 of 25.





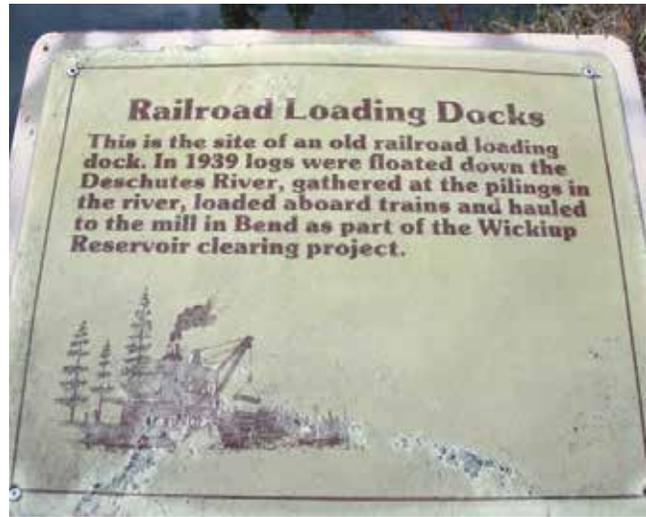
Deschutes River Trail, Sign 23 of 25.



Deschutes River Trail, Sign 24 of 25.



Deschutes River Trail, View of Sign 25 of 25.



Deschutes River Trail, Sign 25 of 25.



5. North Gateway Scenic Byway Viewpoint

North Gateway, Signs 1-7. Five interpretive signs mounted in a sweeping lava rock base provide orientation for the Byway traveler. The “Journey of Water” interpretive theme for the Byway is visible along the edge of the parking area and a geology sign identifies landscape features at the scenic viewpoint.

Who's Watching Who?

These are some of the wildlife that may be observing you along the Cascade Lakes Scenic Byway.

The lakes and streams along the Scenic Byway are what attract people to this area. It's also what has attracted animals since the beginning of time. Please remember they were here first and show respect for their habitat.

Watch for osprey fishing above lakes while deer and elk graze in meadows and bald eagles rest in trees. Others such as black bear, beaver, river otter, marten, mink and frogs are more hidden. Look for their tracks, trails, chew marks, burrows, and scat.

Winter provides a different scenic byway experience. You might see wildlife tracks like these.

North Gateway, Sign 1 of 7.

Ceded Lands and Ancient Trade Routes

What are Ceded Lands?
The Treaty of 1855 created the present 640,000 acre Confederated Tribes of the Warm Springs Indian Reservation from 10 million acres of ancestral homelands turned over (ceded) to the United States. Much of central Oregon was once part of the original territories of the Wasco and Warm Springs Indian Tribes. The Treaty protects sacred sites and ensures access to ancestral lands to harvest fish and to gather roots, berries, plants, and other resources.

In the past, Klamath and other Great Basin Indians used the Klamath Trail as a travel route for trading with Columbia River Indians. This ancient trade route is now known as Highway 97. Annual gatherings brought together numerous tribes with diverse languages and cultures.

Throughout time, different tribal communities have made their home in central Oregon. Today, the Warm Springs community has three main tribes each with its own language and traditions. The Warm Springs speak Isishilim, the Paiute speak Numu and the Wasco speak Kikish. To perpetuate their culture, tribal elders are teaching young people their languages.

North Gateway, Sign 2 of 7.

Welcome to Cascade Lakes National Scenic Byway

This 66-mile historic highway was selected by Scenic America as one of the nation's ten most important byways.

Discover why as you experience wilderness where you can watch and be watched by wildlife, enjoy native plants and be dazzled by the unique beauty of the high Cascade Lakes.

The most outstanding intrinsic qualities of the Cascade Lakes National Scenic Byway are scenic, natural and recreational. In 1989 the Cascade Lakes Highway was officially dedicated as a National Forest Scenic Byway and then in 1998, it was designated a national scenic byway.

North Gateway, Sign 3 of 7.

We're putting the 'scene' back in scenic!

Scenic Byways are important because they help create greater appreciation for aesthetics and for the natural and cultural environment. On the Cascade Lakes Scenic Byway it's all about beauty. There are more than one hundred scenic byways across America. The Cascade Lakes Scenic Byway is one of several scenic byways in Oregon that preserve scenery for today and for future generations.

Scenery is managed along the scenic byway to protect and enhance outstanding views for the visitor. Views along the Cascade Lakes Scenic Byway are constantly changing due to vegetation growth, wind, disease and insect damage, lightning and fire, logging and thinning. As we celebrate the intrinsic values of this scenic byway, visual quality has become a much higher priority.

North Gateway, Sign 4 of 7.

The Right Stuff

Native plants are here because they have what they need to cope with conditions.

What you see before you, and as you travel the Cascade Lakes Scenic Byway is a young volcanic landscape. The sandy soils that dominate the landscape are poor in vital plant nutrients, and they are also very sandy, causing rainfall and snowmelt to drain through quickly. The native plants that live here have "the right stuff" to cope with these conditions.

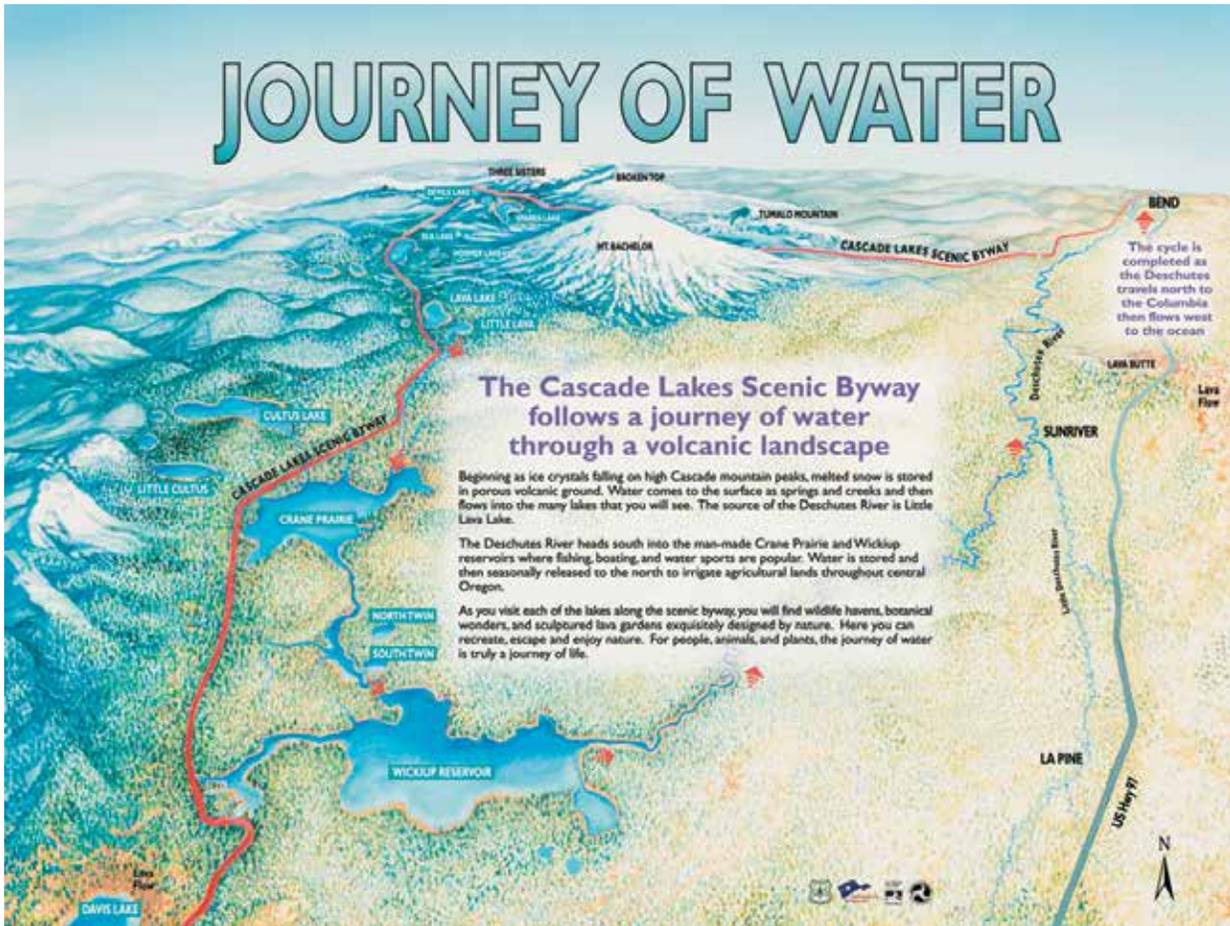
But because of these restrictive conditions, there are fewer of these special plant species here than in other areas, resulting in lower plant diversity.

Each species has an intriguing story to tell as it relates to this particular landscape along the Scenic Byway. Snowbrush, bitterbrush, and lupines, for example, take nitrogen from the air and provide it, through their roots, to these nitrogen-poor soils.

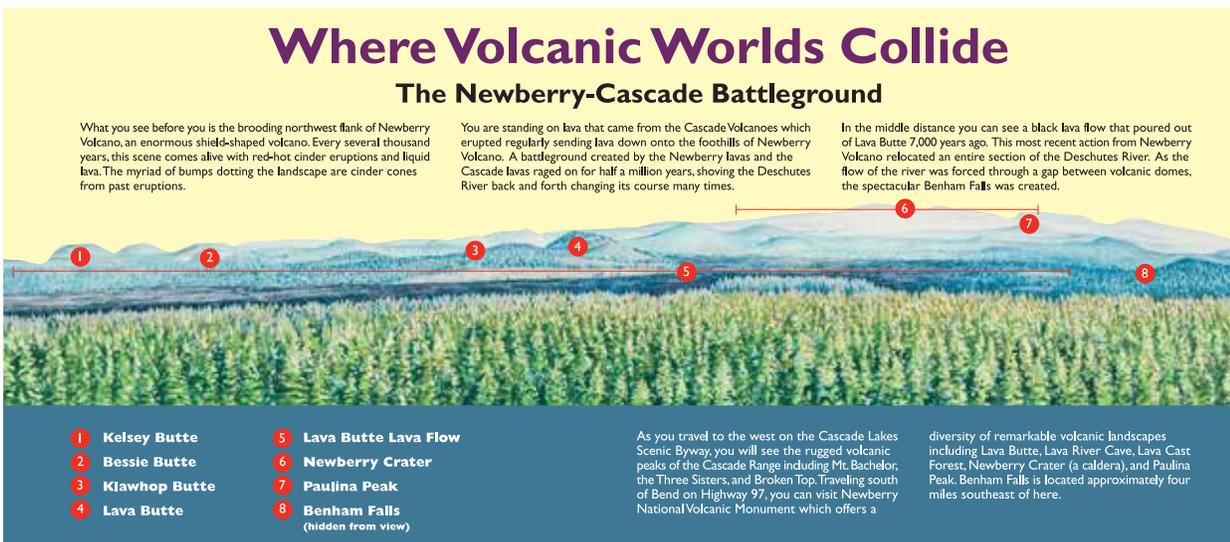
- 1 Yarrow
- 2 Indian Paintbrush
- 3 Lupine
- 4 Monkshood
- 5 Pinenut
- 6 Morel
- 7 Larkspur
- 8 Oregon Sunshine
- 9 White Matsutake
- 10 Davidson's Penstemon
- 11 Greenleaf Manzanita
- 12 Snowbrush
- 13 Ponderosa Pine
- 14 Mountain Hemlock

North Gateway, Sign 5 of 7.





North Gateway, Sign 6 of 7. A map and introduction to the Byway theme is located along the edge of the parking area.



North Gateway, Sign 7 of 7. This sign offers a view of Newberry Volcano and provides a mountain finder as well as geologic history of the area.





7. Wanoga Day-Use Area

One interpretive sign (Central Oregon Snow Play through the Years) was installed in 2009 at Wanoga Day-Use Area. A Cascadian-style kiosk with interpretive signs, maps, and a memorial to Steve Larsen were added in 2011.



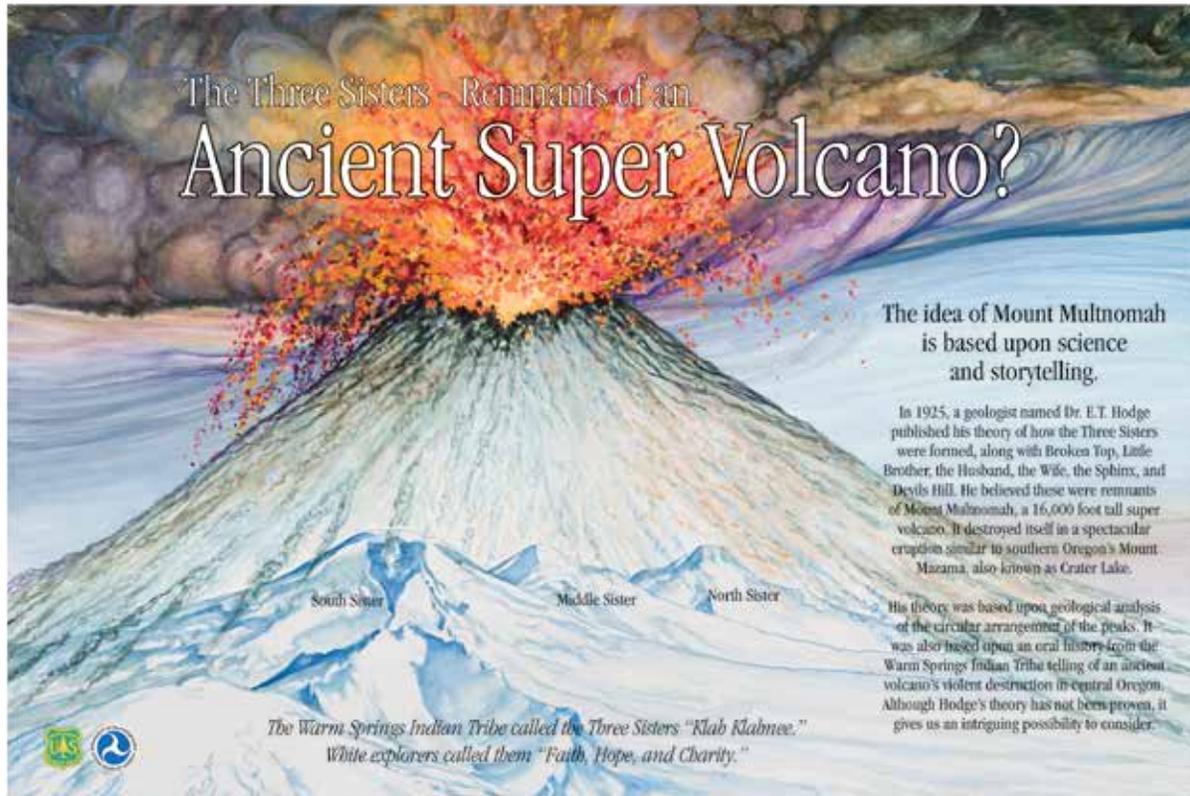
Wanoga Day-Use Area, Sign 1 of 1.





9. Kapka Butte Sno-Park

New interpretive sign about the Ancient Super Volcano was installed in 2015.

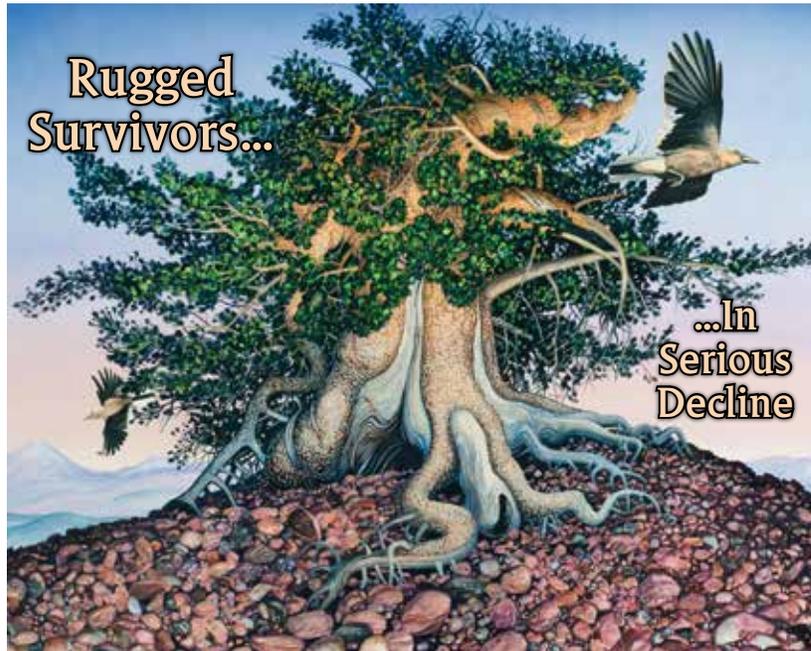


Kapka Butte Sno-Park, Sign 1 of 1.



10. Mt. Bachelor Ski and Summer Resort

Two new interpretive signs about whitebark pine were added in 2014.



Mt. Bachelor, Sign 1 of 2.

Whitebark Pine has one good friend and several *really bad* enemies

Clark's nutcrackers help these pines survive. Its specialized beak cracks open tough cones and caches seeds below ground for food storage. Seeds not recovered as food grow into future whitebark pine forests.

Whitebark pine is an important alpine tree, often growing at the highest points on the mountains. It provides food and shelter for wildlife and helps stabilize and anchor fragile soils. These trees can live to be over 1000 years old.

Insects and disease are killing trees at an alarming rate. Climate change may also lower seedling survival and increase disease. These threats are causing whitebark pine populations to decline.

Clark's Nutcracker
Master seed planter

Needles are in clusters of five and younger trees have white, smooth bark.

White Pine Blister Rust
Non-native fungus

This disease causes cankers which kill cone-producing branches and tops.

Mountain Pine Beetle
Big damage in a little package

These native beetles mass attack mature trees leaving behind skeleton forests.

Mt. Bachelor, Sign 1 of 2.





12. Todd Lake

A historic hand-carved wooden interpretive sign was replaced by a newer sign describing Todd Lake and its history. The sign is located near the southern edge of Todd Lake, approximately 1/8 mile hike from the Todd Lake Trailhead.



13. Soda Creek Interpretive Site

The two interpretive signs were relocated to a newly designed interpretive site outside of the floodplain. The signs describe the Soda Creek flood of 1996 and a subsequent channel restoration prior to ongoing restoration work.





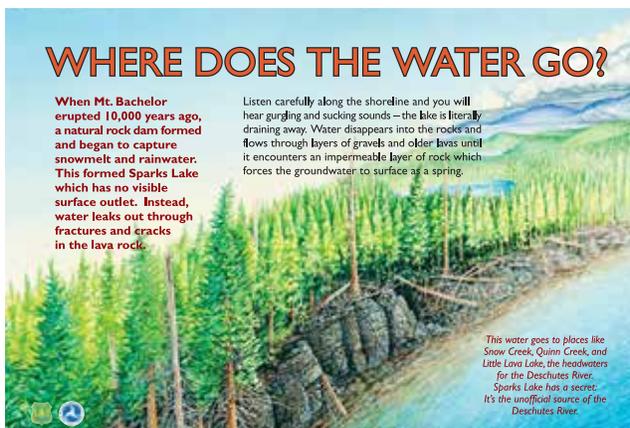
14. Ray Atkeson Memorial Trail at Sparks Lake



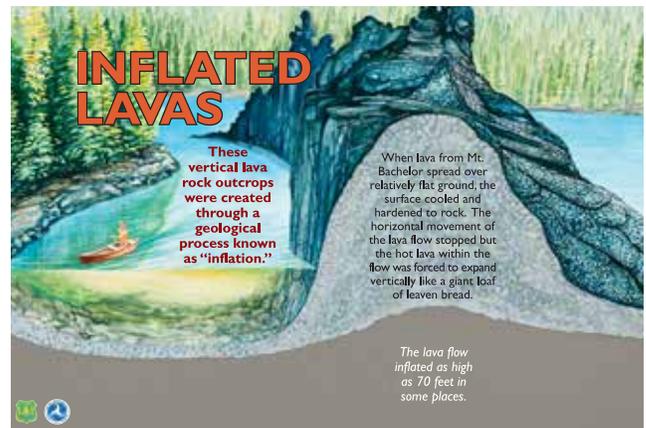
Ray Atkeson Memorial Trail Interpretive Signs.

15. Sparks Lake Boat Ramp

Two interpretive signs were installed in 2012. One sign describes the creation and hydrology of Sparks Lake. The other sign describes the inflated lavas that are visible from the water when paddling.



Sparks Lake Boat Ramp, Sign 1 of 2.



Sparks Lake Boat Ramp, Sign 2 of 2.





16. Sparks Meadow Wayside

There is a restored wooden historic sign with basic information about Sparks Lake. A new interpretive sign about the formation of the meadow was installed in 2012.



Sparks Meadow Wayside, Sign 1 of 2.



Sparks Meadow Wayside, Sign 2 of 2.

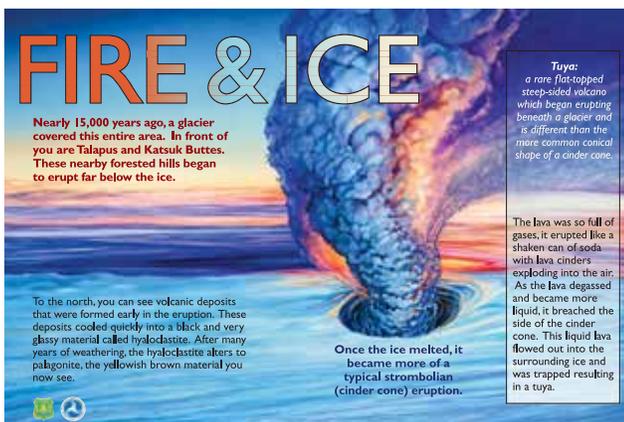


20. Devils Lake Wayside

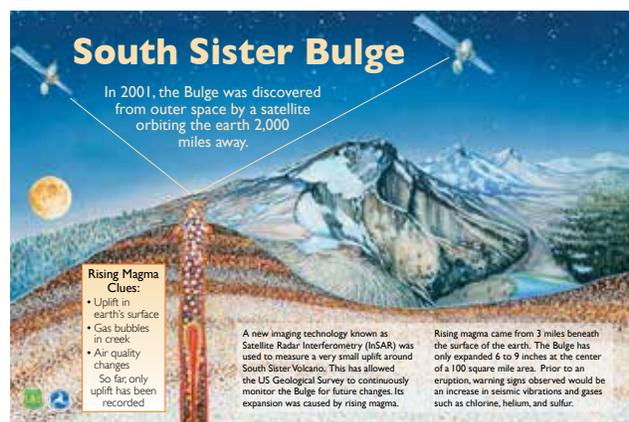
Restored historic wooden wayside sign located above Devils Lake. Sign gives elevation, lake size, and depth, and historical use of the highway as an old Indian trail. There are two new interpretive signs. The first one installed in 2012 describes sub-glacial eruptions and the formation of Talapus and Katsuk Buttes. The second one installed in 2013 describes the South Sister Bulge and its discovery by satellite.



Devils Lake Wayside, Sign 1 of 3.



Devils Lake Wayside, Sign 2 of 3.



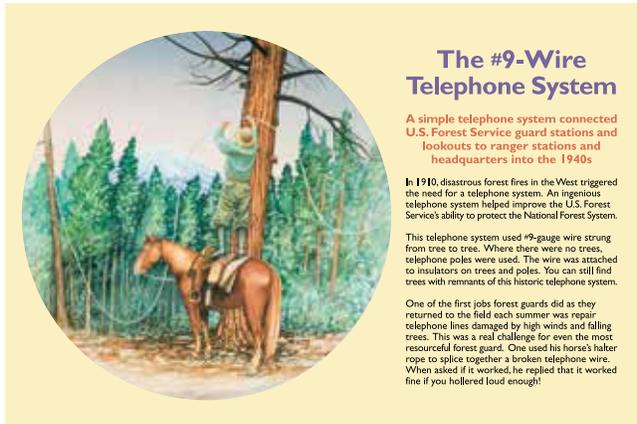
Devils Lake Wayside, Sign 3 of 3.



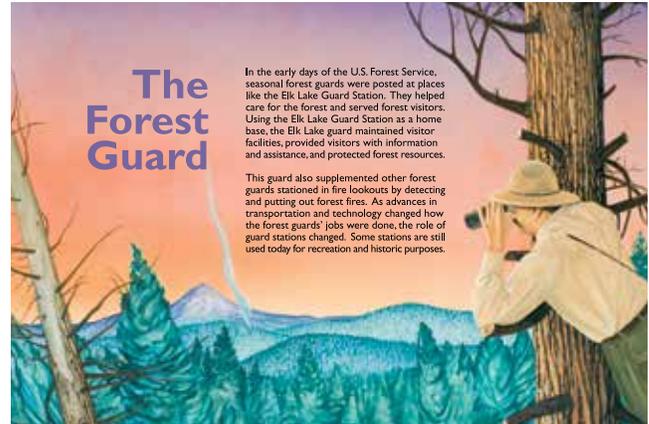


22. Elk Lake Guard Station

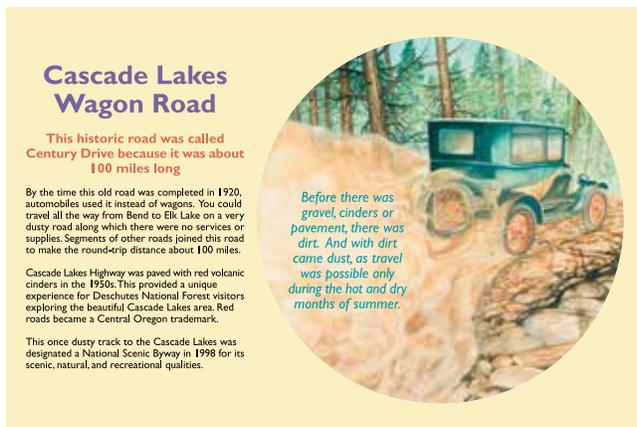
There are four interpretive signs at this site. The signs focus on the history of the guard station and the Forest Service.



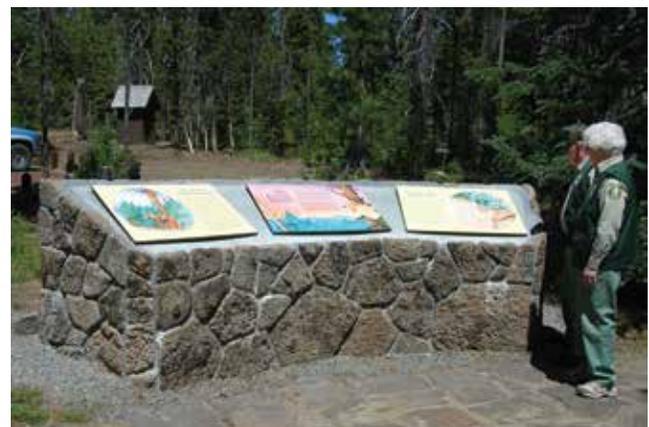
Elk Lake Guard Station, Sign 1 of 4. This is one of 3 signs in a lava rock sign base on the patio of the guard station. It details the history of the #9-Wire Telephone System.



Elk Lake Guard Station, Sign 2 of 4. This is one of 3 signs in a lava rock sign base on the patio of the guard station. It details the history of the Forest Guard.



Elk Lake Guard Station, Sign 3 of 4. This is one of 3 signs in a lava rock sign base on the patio of the guard station. It details the history of the Cascade Lakes Wagon Road.



Three signs are in a lava rock sign base in the picnic area behind the guard station.





A step back in time...

Elk Lake Guard Station and the Forest Guard

A piece of Forest Service history saved for future generations

 In the early days of the National Forest System, forest guards often posted at guard stations were the forest rangers' right-hand men. Guard stations were satellites of ranger stations.

The log cabin you see was built in 1929 to serve as a base for a forest guard. Scarce funds during the Great Depression kept the station from being staffed in the early 1930s. From the late 1930s through the early 1990s, forest guards and other U.S. Forest Service personnel were based here. Their jobs changed as the population grew, access improved, and more forest visitors came.

In 1997, the Forest Service decided to restore the guard station as a visitor information center and historic site on the popular Cascade Lakes National Scenic Byway. Forest Service personnel and Passport in Time volunteers restored the cabin. Funds from the Federal Highways Administration through the Oregon Forest Highway Program paid for rehabilitating the grounds and the road to the site.

Now, as you visit Historic Elk Lake Guard Station, you get a feel for how the forest guard lived and worked in a very different time not too long ago.



The restored guard station looks just like it did originally, except the back porch is now the front porch.



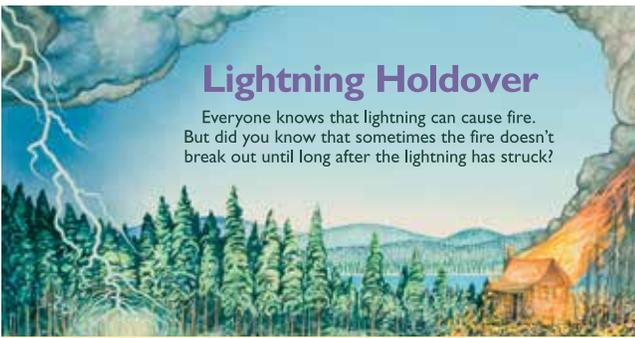
Elk Lake Guard Station, Sign 4 of 4. This sign stands alone at the edge of the parking area, and offers an introduction to the history and restoration of the guard station.

24. Elk Lake Viewpoint #1

Two interpretive signs are on a lava rock sign base overlooking Elk Lake.

Lightning Holdover

Everyone knows that lightning can cause fire. But did you know that sometimes the fire doesn't break out until long after the lightning has struck?



Lightning can turn into fire days later. With the 1998 Elk Lake Fire, it took almost a month. Lightning caused a smoldering fire to remain undetected for many days. Then, on September 2, 1998, conditions changed and the hidden fire suddenly revealed itself and turned into an inferno.

This 251-acre fire burned for two weeks and destroyed three cabins. A lightning detection map was used to determine that the last strike occurred here 29 days before. Lightning fires can smolder for two to seven days before being detected. The record for central Oregon is 79 days.

Elk Lake Viewpoint #1, Sign 1 of 2. This sign provides interpretation about the 1998 Elk Lake Fire.

A Birdwatcher's Dream

You are standing in a special place. The desert to the east gets less than twelve inches of rain per year. The mountains to the west get over one hundred and twelve inches! In between are the Cascade lakes which attract birds from the east and the west, bringing a rich diversity to this area.

You are likely to see a desert bird and a mountain bird at the same time. You can also see migratory birds sharing the same place with resident birds, and water birds with land birds. From hummingbirds to cranes, you'll see more diversity here than just about anywhere.



1. Rufous Hummingbird
2. Three-toed Woodpecker
3. Goshawk (several)
4. Western Bluebird
5. Red-winged Blackbird
6. Sandhill Crane
7. Flammulated Owl
8. Barrow's Goldeneye (pair)

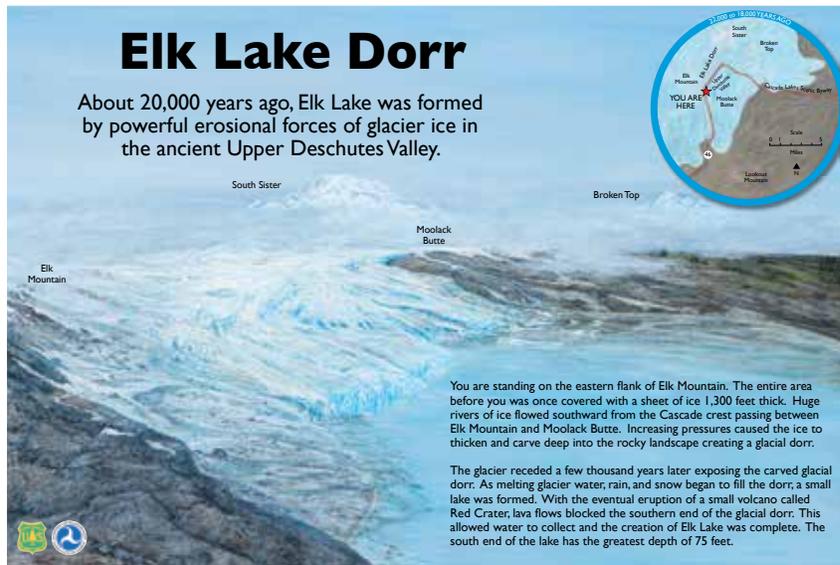
Elk Lake Viewpoint #1, Sign 2 of 2. This sign provides highlights the ecological variability of the Cascade Lakes and some of the many bird species that can be seen here.



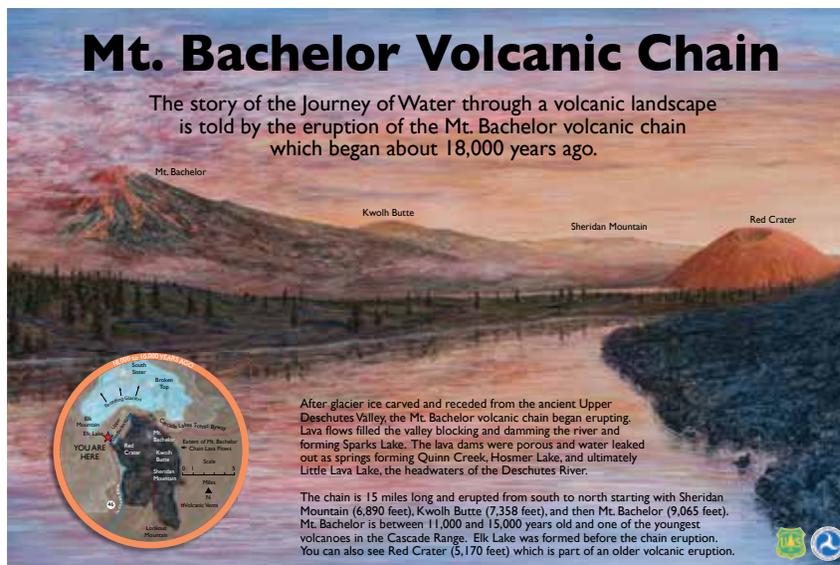


25. Elk Lake Viewpoint #2

Two interpretive signs were installed in 2013 that describe the Mt. Bachelor Volcanic Chain and the formation of Elk Lake by glaciers.



Elk Lake Viewpoint #2, sign 1 of 2. This sign describes the formation of Elk Lake by glaciers.



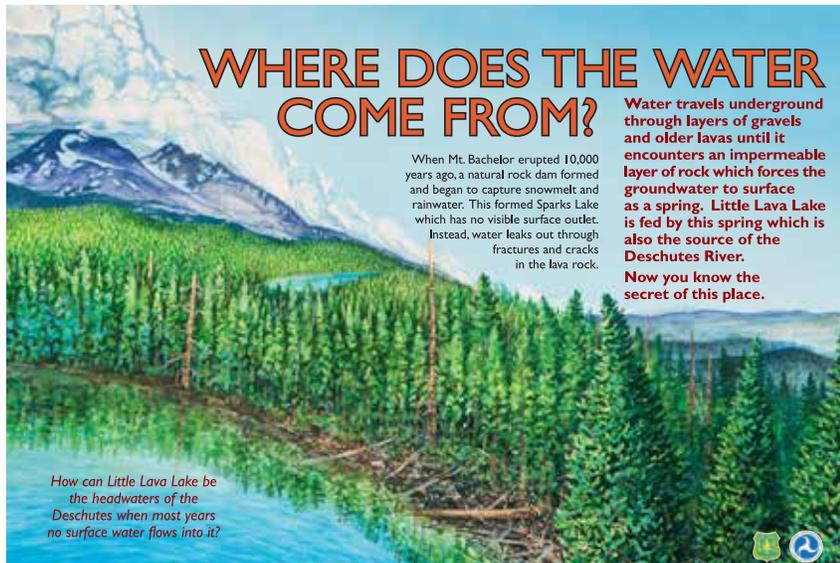
Elk Lake Viewpoint #2, sign 2 of 2. This sign describes the Mt. Bachelor Volcanic Chain.





27. Little Lava Lake: Headwaters of the Deschutes River

This interpretive sign was installed in 2012 and it describes the hydrology of Little Lava Lake and the Deschutes River. A similar sign “Where Does The Water Go” is located at the Sparks Lake Boat Ramp (See page 53).



Little Lava Lake, Sign 1 of 1.

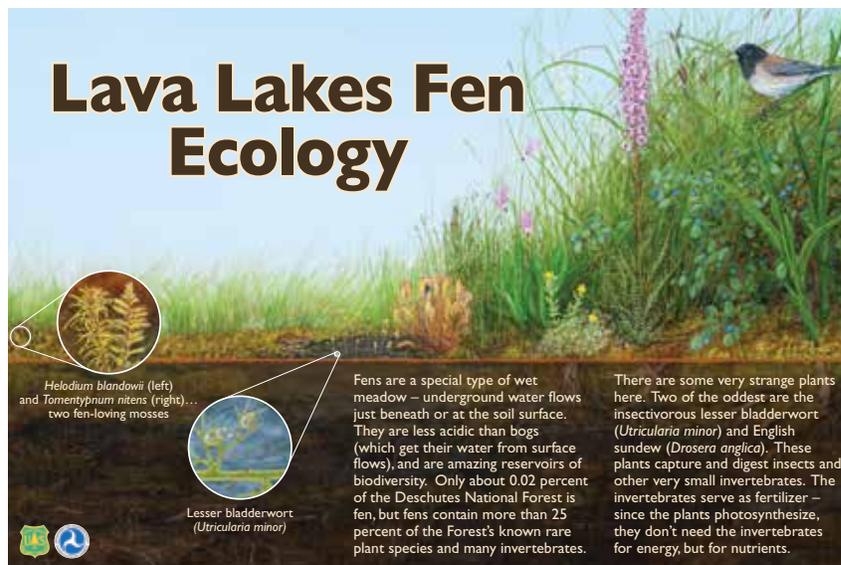


28. Wayside Fen

Two interpretive signs were installed in 2013 that describe the Lava Lakes fen peatland and ecology.



Wayside Fen, sign 1 of 2. This sign describes the Lava Lakes fen peatland.



Wayside Fen, sign 2 of 2. This sign describes the Lava Lakes fen ecology.





32. Quinn River and Osprey Point Interpretive Site

Two short trails lead from the Osprey Point Trailhead. Both trails have interpretive signs.



Osprey Point and Quinn River Trail Sign.



Osprey Point and Quinn River, Sign 1 of 7.



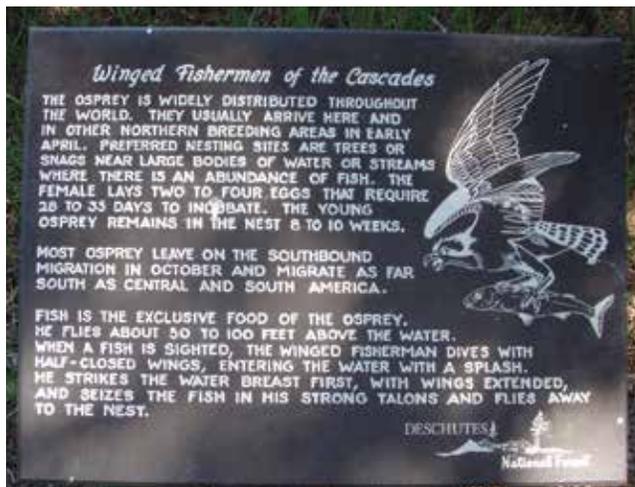
Osprey Point and Quinn River, Sign 2 of 7.



Osprey Point and Quinn River, Sign 3 of 7.



Osprey Point and Quinn River, Signs 4-7 are located in a small loop with this view of Crane Prairie Reservoir.



Osprey Point and Quinn River, Sign 4 of 7.



Osprey Point and Quinn River, Sign 5 of 7.



Osprey Point and Quinn River, Sign 6 of 7.



Osprey Point and Quinn River, Sign 7 of 7.

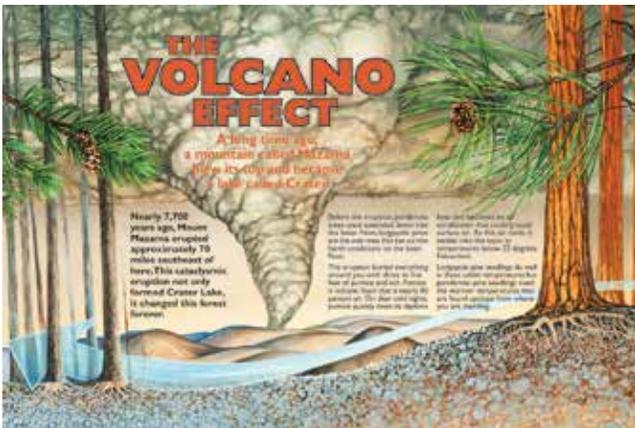




36. Davis Lake Wayside



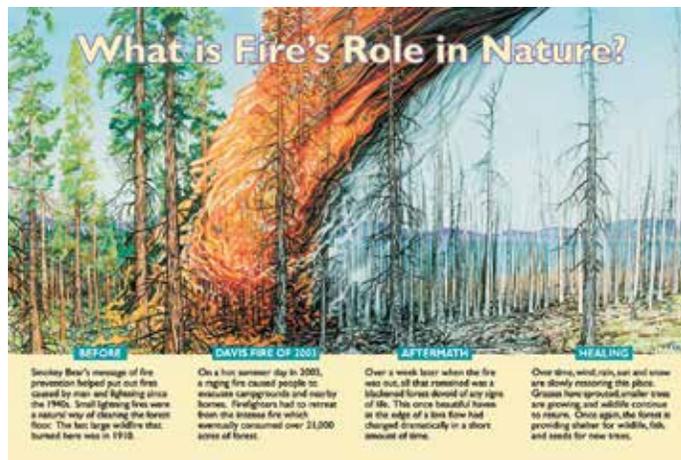
View of Maiden Peak and Davis Lake Fire.



Davis Lake Wayside, Sign 1 of 3.



Davis Lake Wayside, Sign 2 of 3.



Davis Lake Wayside, Sign 3 of 3.





37. South Gateway Scenic Byway Interpretive Site

There are five signs at the South Gateway, with interpretation on a variety of aspects of the Byway. These are identical to five of the signs at the North Gateway Scenic Byway Viewpoint so that travelers entering the Byway from either direction get the same general introduction.



Byway traveler learning about the intrinsic values of the Cascade Lakes Scenic Byway.



Who's Watching Who?

These are some of the wildlife that may be observing you along the Cascade Lakes Scenic Byway.

The lakes and streams along the Scenic Byway are what attract people to this area. It's also what has attracted animals since the beginning of time. Please remember they were here first and show respect for their habitat.

Watch for osprey fishing above lakes while deer and elk graze in meadows and bald eagles rest in trees. Others such as black bear, beaver, river otter, marten, mink, and frogs are more hidden. Look for their tracks, trails, chew marks, burrows, and scat.

Winter provides a different scenic byway experience. You might see wildlife tracks like these.

South Gateway, Sign 1 of 5.

Ceded Lands and Ancient Trade Routes

What are Ceded Lands?
The Treaty of 1855 created the present 640,000 acre Confederated Tribes of the Warm Springs Indian Reservation from 10 million acres of ancestral homelands turned over (ceded) to the United States. Much of central Oregon was once part of the original territories of the Wasco and Warm Springs Indian Tribes. The Treaty protects sacred sites and ensures access to ancestral lands to harvest fish and to gather roots, berries, plants, and other resources.

In the past, Klamath and other Great Basin Indians used the Klamath Trail as a travel route for trading with Columbia River Indians. This ancient trade route is now known as Highway 97. Annual gatherings brought together numerous tribes with diverse languages and cultures.

Throughout time, different tribal communities have made their home in central Oregon. Today, the Warm Springs community has three main tribes each with its own language and traditions. The Warm Springs speak Kikishin, the Fluere speak Namu and the Wasco speak Kikshit. To perpetuate their culture, tribal elders are teaching young people their languages.

South Gateway, Sign 2 of 5.

Welcome to Cascade Lakes National Scenic Byway

This 66-mile historic highway was selected by Scenic America as one of the nation's ten most important byways.

Discover why as you experience wilderness where you can watch and be watched by wildlife, enjoy native plants and be dazzled by the unique beauty of the high Cascade Lakes.

The most outstanding intrinsic qualities of the Cascade Lakes National Scenic Byway are scenic, natural and recreational. In 1989, the Cascade Lakes Highway was officially dedicated as a National Forest Scenic Byway and then in 1998, it was designated a national scenic byway.

South Gateway, Sign 3 of 5.

We're putting the 'scene' back in scenic!

Scenic Byways are important because they help create greater appreciation for aesthetics and for the natural and cultural environment. On the Cascade Lakes Scenic Byway, it's all about beauty. There are more than one hundred scenic byways across America. The Cascade Lakes Scenic Byway is one of several scenic byways in Oregon that preserve scenery for today and for future generations.

Scenery is managed along the scenic byway to protect and enhance outstanding views for the visitor. Views along the Cascade Lakes Scenic Byway are constantly changing due to vegetation growth, wind, disease and insect damage, lightning and fire, logging and thinning. As we celebrate the intrinsic values of this scenic byway, visual quality has become a much higher priority.

South Gateway, Sign 4 of 5.

The Right Stuff

Native plants are here because they have what they need to cope with conditions.

What you see before you, and as you travel the Cascade Lakes Scenic Byway, is a young volcanic landscape. The ashy soils that dominate the landscape are poor in vital plant nutrients, and they are also very sandy causing rainfall and snowmelt to drain through quickly. The native plants that live here have "the right stuff" to cope with these conditions.

But because of these restrictive conditions, there are fewer of these special plant species here than in other areas, resulting in lower plant diversity.

Each species has an intriguing story to tell as it relates to this particular landscape along the Scenic Byway. Snowbrush, bitterbrush, and lupines, for example, take nitrogen from the air and provide it, through their roots, to these nitrogen-poor soils.

1 Yarrow	11 Oregon Sunshine
2 Indian Paintbrush	12 White Matzataka
3 Lupine	13 Davidson's Penstemon
4 Monkey-flower	14 Greenleaf Manzanita
5 Pinedrop	15 Snowbrush
6 Morel	16 Ponderosa Pine
7 Larkspur	17 Mountain Hemlock

South Gateway, Sign 5 of 5.



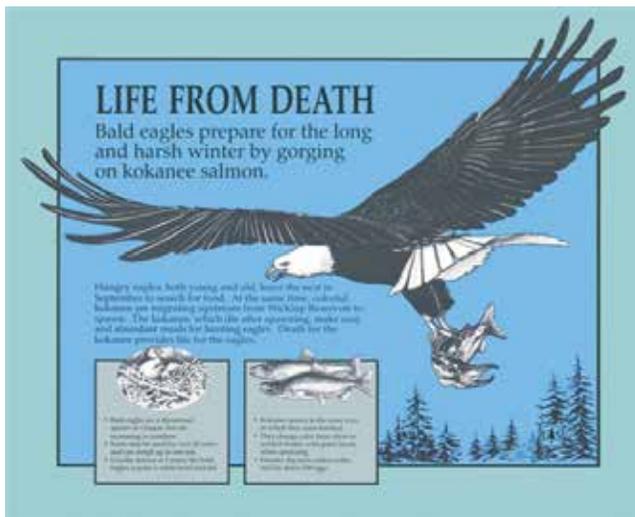


39. Browns Mountain Crossing

There are two interpretive signs and an accessible fish-viewing and fishing platform at this site.



Byway traveler connecting with nature at the fish-viewing platform.



Browns Crossing, Sign 1 of 2.

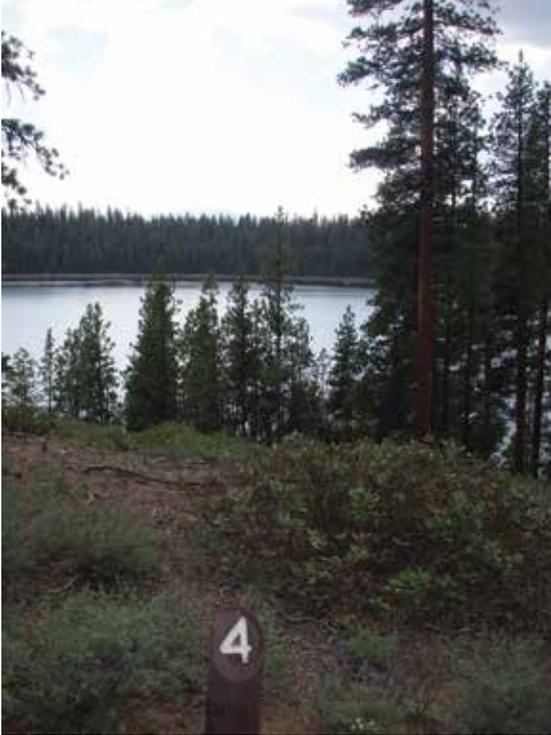


Browns Crossing, Sign 2 of 2.





40. Twin Lake Maars and Wickiup North Arm Brochure



One of six numbered stops along the Lewis Roth Dwarf Mistletoe. A brochure is available at the trailhead.

Lewis Roth Dwarf Mistletoe Trail

Deschutes National Forest, Oregon



Question: What's stunting and killing these pine trees?

Answer: Western dwarf mistletoe.

Western dwarf mistletoe (*Arceuthobium campylopodium*) is a parasite common in western forests. These cause a great deal of damage to ponderosa pine (*Pinus ponderosa*) trees.

Take this self-guided trail (round trip distance about 0.4 mile, allow about 30 minutes) to the top of the lake rim. You will see some of the damage caused by this parasite. Along the way, stop at the numbered posts where the story in this folder is told.

Western dwarf mistletoe biology

Post 1. See the yellow to olive green leafless plants on the pine's branches. Unlike "Christmas" mistletoe, these plants lack green leaves for manufacturing food. Dwarf mistletoes are complete parasites embedded in and feeding off the tree tissues. These plants house the sticky mistletoe seeds that are released in late summer to begin the tree infection process.



Post 2. When ripe, mature mistletoe seeds are expelled, traveling up to 100 feet at speeds of over 60 miles per hour!

Seeds land on and attach to tree branches. If successful, they "take root" and slowly spread the infection to more trees over an ever-increasing area.

Typically, overtopping trees "rain" mistletoe seeds onto the trees below. Infected trees rarely grow into big trees.

Limits on the spread of dwarf mistletoe

Post 3. Western dwarf mistletoe tends to infect only ponderosa pines. Each tree species typically has its own unique mistletoe. Other species are resistant to this particular parasite. Note that lodgepole pines (*Pinus contorta*) in this area remain uninfected.

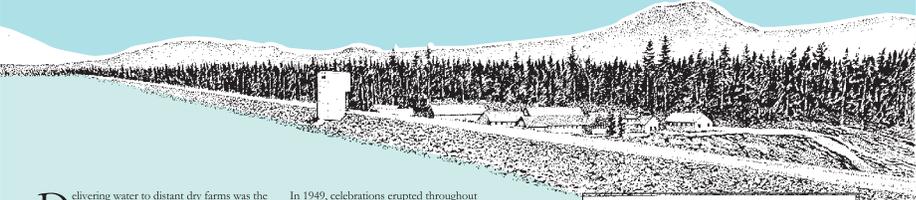




41. Wickiup Dam

There are currently three new interpretive signs which describe the history of the dam and Oregon's last big log drive, creation of new homes for Oregon spotted frogs, and protection of bald eagle habitat.

Saving Water . . .



Delivering water to distant dry farms was the motivation behind the 1939 construction of Wickiup Dam. The name Wickiup refers to shelters built by early Native Americans living in the basin area. Work on the dam was performed by one of the largest groups of Civilian Conservation Corps (CCC) ever assembled. During World War II, Mennonite conscientious objectors also worked on this ambitious water storage project.

When the Wickiup Dam Project began, Shevlin-Hixon cleared 11,000 acres to create the reservoir basin. This was the scene of Oregon's last big log drive.

In 1949, celebrations erupted throughout the area to commemorate completion of the dam. Water began to flow smoothly down the Deschutes River, through irrigation canals, tunnels, and bridges to the community of Madras, over 90 miles away.

Half a century later, inspections revealed that seepage problems were weakening the dam. Engineers were concerned that the dam would fail during an earthquake, causing catastrophic damages to downstream residents and wildlife. As a safety solution, the Bureau of Reclamation reinforced the dam to prevent possible earthquake damage and to guarantee public safety.



11,000 acres were cut with just band saws!



Veteran river drivers guided enormous logs down 40 miles of turbulent Deschutes River waters often using dynamite to blow out log jams.




Wickiup Dam, Sign 1 of 3.

Saving Frogs . . .



The original construction of Wickiup Dam displaced wildlife from natural habitats. Today, environmental ethics promote awareness and responsibility for protecting wildlife.

The Oregon Spotted Frog (*Rana pretiosa*), a species needing protection, was discovered living below the dam prior to the dam's restoration. Populations of this frog along the East Cascade Range have declined due to habitat loss and introduction of non-native predators. Construction required to reinforce the dam would have destroyed both the frogs and their habitat. The Bureau of Reclamation

decided to save the frogs through an ingenious relocation plan developed by a team of specialists.

This novel solution was to create ponds in a nearby wetland in December 2000, transfer frog egg masses to the new habitat the following spring, and move the adults that summer. Moving an amphibian population to a man-made habitat was unprecedented. Ecologists monitoring the frogs will use the scientific results to guide similar conservation efforts.




Wickiup Dam, Sign 2 of 3.





It All Adds Up!

Whether it is saving water, saving frogs, or protecting wildlife, it all adds up as a way to balance the needs of people and nature. The bald eagle is a perfect example. Needing protection from people, this powerful national symbol became the first species to be federally listed as threatened in Oregon.

Conflicts exist between humans and eagles. At Wickiup Reservoir, eagles are most vulnerable to human activities between January and August while they raise their young. Eagles are most affected by loud noises from motorized vehicles and other disturbances at close distances. On the crest of the dam, portions of the road were relocated to a lower elevation to minimize eagle disturbances and perch sites were constructed.

How can you help protect eagles? Avoid approaching eagle nests or eagles that are perching. Leave the area if the eagle becomes agitated. Keep motorized vehicles on designated roads and trails and pack out your trash. With your help, we can create a safe haven for eagles at Wickiup Reservoir. Thank you!



Wickiup Dam, Sign 3 of 3.



43. Fall River Guard Station

This new interpretive sign was installed in 2015 at the Guard Station. A poetry board will also be added as a feature for the Poets-in-Residence program that occurs annually as a Scenic Byway cultural tourism event that is open to the community.



Story of the Fall River Guard Station





46. Turn-of-the-Century Forest

Three Types of Forests:

Is One Better?

Please take a few minutes to view these three types of forest management.

Think about what each forest does or doesn't provide: beauty, homes for animals, wood products, long term and short term opportunities, soil health, and more.



If any of these forests sparks a thought or questions, please contact the Bend/ Fort Rock Ranger District Silviculturist at 541-383-4000.



Turn-of-the-Century Forest, Sign 1 of 4.



A couple of settlers in 1915 are driving through the clearings created by frequent lightning fires.

Turn-of-the-Century Forest

One Hundred Years Ago...

The ponderosa pine forest in front of you looks like the forests here 100 years ago.

Lightning struck and fires burned through this type of forest every 10 to 15 years. The ponderosa pine's four inch thick bark protected the trees, but the underbrush and seedlings were consumed. Lightning still strikes here, but wildfires are not allowed now because of the concentration of people in this area and our need for wood products.

The Forest Service set a controlled fire here in the spring of 1992. It was burned again in 2003 and reduced the amount of brush. This burned like the lightning fires of long ago and created the clearings you see between the trees.

Look into this old forest. Your gaze can go deep; there is little to block your view. Wildlife that are dependent on open understory and old growth ponderosa pine forests would be found here.

About every ten years, controlled burns will be set here to maintain this Turn-of-the-Century forest in a close to natural state. These 300-year-old trees are a tool in the study of how forests develop. Understanding forest cycles helps the Forest Service manage these resources for future generations.



Turn-of-the-Century Forest, Sign 2 of 4.





Same-Age Forest



Ponderosa Population Boom

The dense, thick forest up this hill is full of trees of the same age and the same size. The majority of the older, taller trees that used to be there are now gone. Sun and nutrients can now reach the younger trees and they are growing rapidly.

This forest will be thinned one or two more times during its lifetime. Once mature, these trees will be available for harvesting and the majority of trees will be removed. After harvesting, newly planted seedlings can start the cycle of this even-age forest again.

Try to see through the trees. Their density creates a screen which gives wildlife safe hiding cover and shelter.

Managing an even-age forest has an objective of even growth throughout the stand.



Look for the family of deer in this picture; this type of forest provides good hiding cover for animals.

Turn-of-the-Century Forest, Sign 3 of 4.

Multi-Age Forest



A Family Lives Across the Road

There are seedlings and saplings in the forest across the road. These young trees share the forest with middle age and old trees.

Some trees were removed from this all-age forest in 1990. The limbs and branches left over from logging were left on the ground so the nutrients could be recycled.

Look for the partial clearings scattered with low brush that provide food for wildlife; the thicker areas of brush and small trees provide hiding cover.

About every 15 years, a few selected trees can be removed and used for wood products. Most of the trees will be left to grow and some dead trees will be left as homes for birds and animals. Mature, healthy trees will continually drop seeds into the fresh clearings where new trees can start to grow.

Managing a multi-age forest has an objective of more varied structure throughout the stand.



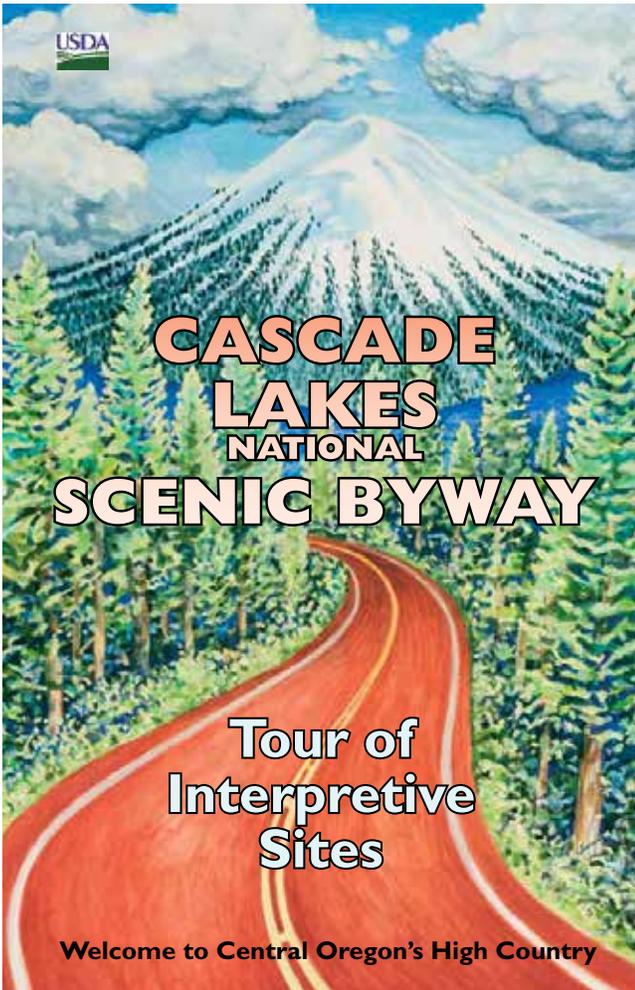
Young, middle, and old age trees in this forest provide a good home for these animals.

Turn-of-the-Century Forest, Sign 4 of 4.





47. Cascade Lakes Scenic Byway Tour of Interpretive Sites Brochure



Byway Brochure Front Panel.



Byway Brochure Back Panel.





Welcome to Cascade Lakes National Scenic Byway

This 66-mile historic highway was selected by Scenic America as one of the nation's ten most important byways. It became a National Scenic Byway in 1998 because of its outstanding scenic, natural and recreational qualities. It was also dedicated as a National Forest Scenic Byway in 1989. The byway follows a journey of water through a volcanic landscape accentuated by 14 alpine lakes. Reflected in many lakes are scenic views of Mt. Bachelor, Broken Top, and South Sister. The byway is a great way of getting in touch with cultures and communities of Central Oregon.



The Cascade Lakes have been the ultimate outdoor family adventure for generations of Central Oregon residents and visitors. Most of the fun stories you hear at family gatherings are all about the fishing, camping, boating, and hiking trips made together over the years. To learn more about Central Oregon's high country, see the interpretive sites tour map that provides an ideal way to connect with nature, history and cultural heritage.

Byway Brochure Stories.

History of the Red Road

Cascade Lakes Highway was paved with red volcanic cinders in the 1950s. This provided a unique experience for Deschutes National Forest visitors exploring the beautiful Cascade Lakes area. Red roads became a Central Oregon landmark. The red road was paved over with black asphalt in the 1980s. This historic once red road was called Century Drive because it was about 100 miles round-trip from Bend to Elk Lake.



Historic Elk Lake Guard Station

A historic guard station at the heart of the byway is where volunteers share stories about the forest guard and the surrounding area. The log cabin was built in 1929 and served as a base for a forest guard. Restored as a visitor information center in 1997 and rededicated in 2001, additional funds from the Federal Highway Administration in 2006 were used to rehabilitate the grounds and restore the road to the site. The guard station is now included on the National Register of Historic Places.



Byway Brochure Stories.





The Cascade Lakes

Todd Lake

A short walk from the parking area will take you to a small alpine lake nestled within a protected and peaceful forest setting framed by mountain slopes. A plethora of wildflowers color the meadows spring through fall. Walk-in only camp sites have no drinking water.

(no motors allowed)

Sparks Lake

Most loved by Ray Atkeson, Oregon's photographer laureate, wildflower bouquets spring from lava formations surrounded by water. Known for its peaceful canoeing and kayaking, the views are a photographer's dream with geological discoveries to be made on the Ray Atkeson Memorial Trail. Camp sites have no drinking water.

(motors - 10 mph)

Devils Lake

The glacial source of these turquoise green waters is as well known for its cooler temperatures as its striking appearance. This shallow protected lake is ideal for peaceful paddling and picnicking and is the jumping off point for hiking South Sister. Camp sites have no drinking water.

Elk Lake

This is the ultimate gathering place for those who love to be in or on the water. The views to Mt. Bachelor and South Sister are incredible and Elk Lake Resort is open year-round for both summer and winter recreation activities.

Amenities: Cabins, Restaurant, Grocery Store, Boat Rentals, Gas, Trailhead
Rentals: Canoes, Fishing Boats (motors) (motors - 10 mph)

Hosmer Lake

Originally known as "Mud Lake," Hosmer has become a sportsman's paradise because of its barless hook catch and release fly fishing. The serenity of the shallow marsh areas surrounded by forest make this place a birdwatcher's dream. Osprey, bald eagle, beaver, and otter live in these waters.

(no motors allowed)

Lava Lake and Little Lava Lake

Lava Lake is known for its resort which provides supplies for summer camping and fishing expeditions. Little Lava Lake is the source of the Wild & Scenic Deschutes River.

Amenities at Lava Lake: RV Sites, Lodge, Grocery Store, Gas
Amenities at Little Lava Lake: Canoes, Fishing Boats (motors) (motors - 10 mph)

Cultus Lake

Cultus Lake seems to have it all with high altitude white sandy beaches, dense and towering forests full of ponderosa pine, Douglas-fir, spruce, white pine, white fir and sugar pine. Cultus Lake Resort has a picture perfect view of the lake from its restaurant and cabins.

Amenities: Cabins, Lodge, Restaurant, Grocery Store, Gas, Trailhead
Rentals: Canoes, Fishing Boats (motors)

Little Cultus Lake

Little Cultus Lake provides a low-key outdoor experience. Located in the shadow of Cultus Mountain, this is a great place to escape to. Camp sites have no drinking water.

(motors - 10 mph)

Crane Prairie

First created in 1922 for irrigation purposes, this reservoir has become a popular boating and fishing destination. During spring migration, a high concentration of waterfowl can be seen. The Crane Prairie Resort has had an interesting history with some high-profile visitors.

Amenities: RV Sites, Lodge, Grocery Store, Gas
Rentals: Fishing Boats (motors) (motors - 10 mph)

North & South Twin Lakes

These twin lakes are symmetrical in shape and about 60 feet deep. They are unique geological formations known as volcanic maars. North Twin has a more primitive level of camping with tent sites while Twin Lakes Resort at South Twin has cabins including one named for President Hoover who once stayed there.

Amenities at South Twin: Cabins, Lodge, Restaurant, Grocery Store, Showers & Laundry Facilities (open to the public)
Rentals at South Twin: Fishing Boats (no motors allowed)

Wickiup Reservoir

Wickiup is a place for camping, fishing, boating, and water sports. Named for "wickiup" shelters made out of poles and covered with brush or tree limbs, Indians used to camp here while fishing and hunting seasonally each year.

Davis Lake

This large shallow lake was formed about 6,000 years ago when a large lava flow out of Odeel Creek. Historically known for large rainbow trout, there is currently no limit on largemouth bass at this popular flyfishing lake. The area experienced a large fire in 2003.

Recreation Pass required to park at trailheads.

Camp sites are available at all locations.

Ray Atkeson Memorial Trail is an accessible trail.

Legend

Accessible Trail	Boats No Motors	Fishing (fly/barbless)
Biking	Canoeing	Fishing
Boating	Cross Country Skiing	Hiking
Picnicking	Snowmobiling	Swimming
Water Skiing	Windsurfing	

Byway Brochure Lake Panel.

CASCADE LAKES NATIONAL SCENIC BYWAY

GUIDE TO INTERPRETIVE SITES

These selected interpretive sites were highlighted because of opportunities for conservation education, scenic views, and access to the Deschutes River and Cascade Lakes.

- 1 North Gateway**
Learn about the area's geology, wildlife, native plants, indigenous people, and scenic views at this byway orientation site with its accessible trail and viewpoint.
- 2 Deschutes River Trail**
Witness the journey of water as it ultimately joins the Columbia River to the far north. As a Wild & Scenic River, a variety of trail experiences and water adventures await you.
- 3 Ryan Ranch Wetland Restoration**
Breaching a levy to restore wetlands and reintroduce beaver to river habitat is the perfect laboratory for outdoor education about natural ecosystems.
- 4 Mt. Bachelor Ski & Summer Resort**
For a high altitude outdoor classroom, take a chairlift to Pine Marten Lodge and enjoy the Summer Geology interpretive program and the Whitebark Pine interpretive site.
- 5 Ray Atkeson Memorial Trail**
Visit an accessible scenic viewpoint at Sparks Lake, Oregon's only Photographer Laureate was so taken with this place he described it as "a place unlike any other with a beauty all its own."
- 6 Soda Creek**
Learn how Soda Creek was destroyed by a glacial "tsunami" and then restored from a straight channel back to its natural meandering flow and habitat.
- 7 Ray Atkeson Wayside**
The photography of Ray Atkeson created a lifelong legacy of preservation of Oregon's beautiful and wild places.
- 8 Historic Elk Lake Guard Station**
The historic red road and guard station site were restored each summer. Forest Service volunteers provide plenty of stories to byway travelers.
- 9 Elk Lake Viewpoint**
Come to a special place where you'll see migratory birds sharing the same place with resident birds and water birds with land birds. From hummingbirds to cranes, you'll see more diversity at each of the Cascade Lakes.
- 10 Davis Lake Wayside**
In a short time, the fire of 2003 quickly changed Davis Lake. Learn how fire as a naturally occurring event once kept the forest floor more open and clear of debris.
- 11 Browns Crossing**
New homes for fish were created by adding woody debris and fallen trees to the river. An accessible fishing-viewing platform awaits you at this peaceful river site.
- 12 Wickiup Dam**
When the dam was first constructed, it resulted in Oregon's last big log drive. When the dam was later restored, displaced frogs found a new home.
- 13 Lewis Roth Dwarf Mistletoe Trail**
This trail at North Twin Lake campground is named for Dr. Lewis Roth who pioneered dwarf mistletoe research at nearby Pringle Falls Experimental Forest.
- 14 South Gateway**
Discover nature and culture through interpretive art and byway stories about wild animals, native plants, ancient trails, and Indian culture and language.
- 15 Wickiup Reservoir**
Named for "wickiup" shelters made out of poles and covered with brush or tree limbs, Indians used to camp here while fishing and hunting seasonally each year.
- 16 Davis Lake**
This large shallow lake was formed about 6,000 years ago when a large lava flow out of Odeel Creek. Historically known for large rainbow trout, there is currently no limit on largemouth bass at this popular flyfishing lake. The area experienced a large fire in 2003.

To access the byway from Bend, follow signs to Mt. Bachelor Ski & Summer Resort and the Cascade Lakes. To access the byway from Highway 58, follow the junction at Road 61 to the junction at Highway 46. Access from Highway 97 is via Roads 40, 42, 43 or 61. June through October is the best time to take this 3.5-hour drive. The byway is closed during winter beyond Pringle Falls to south of Davis Lake.

For more information, contact the Deschutes National Forest, Bend/Fort Rock District at (541) 383-4000 or go to www.fed.us/re/cenoregon and to www.byways.org

Byway Brochure Map and Interpretive Site Guide.





49. Cascade Lakes Scenic Byway Websites

Information on the Byway is currently available on the National Scenic Byways and Deschutes National Forest websites.

Sign in / Your Profile Search

NSBP

HOME EXPLORE BYWAYS SHARE EXPERIENCES ABOUT BYWAYS PRESS ROOM COME CLOSER

Home » Explore Byways » America's Byways » Cascade Lakes Scenic Byway

State: Oregon
National Forest: Deschutes National Forest
Length: 66.0 mi / 106.2 km
Time to Allow: Take three to five hours to visit this byway.

This byway cuts a path through the mountains, lakes, and forests of central Oregon. Volcanism and glaciation formed more than 150 lakes for which the region is well known. See outstanding examples of lava flows, alpine lakes, and meadows. Cross paths taken by such historic figures as Kit Carson.

come CLOSER to Experience...

Overview
Explore This Byway
Photos
Maps & Directions
Visitor Services
Official Designations
Links

A Traveler's Tale
"ragged" — Great drive and the lakes are cold but fun for all. **NSBP**

More Experiences ▶
Share Your Story ▶

Hit the Oregon Slopes on the Cascade Lakes Scenic Byway
Feb 18, 2008
Are you looking to ski out West this winter? Visit Oregon's Cascade Lakes Scenic Byway in the Deschutes National Forest. With more than four ski resorts and the greatest concentration of glaciers in the West, you'll find plenty of spots for both downhill and cross-country skiing.

Enjoying the Outdoors on the Cascade Lakes Scenic Byway
May 30, 2008
The Cascade Lakes Scenic Byway is known for its stunning array of lakes and other bodies of water, but numerous other opportunities for exploration and fun abound along the byway. With the rugged cliffs of the Cascade Mountains or the black, volcanic rock of the Lava Lands, Cascade Lakes offers water sports and much more.

See all 4 Stories for Cascade Lakes Scenic Byway ▶

come CLOSER to Enjoy the Ride...

1-Day Trip: Cascade Lakes Must See Tour (Oregon)
As you drive along the Cascades Lakes Scenic Byway, note the beautiful lakes, eleven in all that gives the road its name. There are lush meadows...

AMERICA'S BYWAYS®

Add to Wishlist
What's Hot?

Local Information

Visit Visitor and Convention Bureau
800-949-6066

Cascade Lakes Scenic Byway—Oregon.com
Oregon.com page for Cascade Lakes Scenic Byway.

Central Oregon Visitors Association
This website provides information on the many opportunities you may find in Central Oregon, such as lodging, recreational activities, dining, shopping, and arts and culture.

Deschutes and Ochoco National Forests
For more information, including activities and regulations, visit the official Web site of the Deschutes and Ochoco National Forests.

Travel Oregon
Visit this website to help you plan a trip through the beautiful state of Oregon.

<http://www.byways.org/explore/byways/2144>





US FOREST SERVICE | Forest Service National Lakes | CAS

Deschutes & Ochoco National Forests Crooked River National Grassland

Recreational Activities
Special Places

Cascade Lakes Scenic Byway

Best Time: June - October
Length: 56 Miles (All Paved Two Lane)

DESCRIPTION
High peaks, high lakes, high mountains, high meadows — this is a memorable drive through the heart of the majestic Cascade mountains. Most of the landscape here is volcanic, formed by eruptions and lava flows that built mountains and filled basins and created the many lakes you see during the drive. It's warm and sunny in the summer here, lush and green in winter. Mead in and all the scenery is history, from the old paths of early homesteaders to the remains of human settlements 8000 years old. In fact, archaeologists are fairly sure that some of today's landscapes are located where there were hunting camps thousands of years ago.

The scenic byway, along with other roads it connects with, goes by other names sometimes: the Cascade Lakes Highway, the old Century Drive, and part of the highway of the Cascades. This region of Oregon has been a favorite for scenic drives for more than 100 years.

All of the byway is in the heart of the Cascade mountains. The drive connects some of the most beautiful of views that you'll see, as well as the dry, beautiful areas that make up Mount St. Helens National Volcanic Monument.

THE ROUTE
You can get to the byway from U.S. Hwy. 30 or Oregon Hwy. 30, which runs east from Eugene and Corvallis & starts in Bend and ends with Mount St. Helens National Volcanic Monument. Follow the byway all the way to the mountains and then south to a junction with Forest Rd. 61. Here you can turn right to Oregon Hwy. 10 and a short drive to Prineville, or turn left to take Hwy. 30 to Madras & take Hwy. 10 to Bend.

SERVICES
Gasoline: It's hard to find up in Bend. There is a gas station available at Lake Lake, Cascade Lake and Cascade Point Reservoir.
Meat markets in Bend: available seasonally at Elk Lake, Lake Lake, Cascade Lake, and Cascade Point Reservoir.
Camping: There are 23 national forest campgrounds on the byway, most with drinking water. There are also private campgrounds not far from the byway.

POINTS OF INTEREST
Recreational Lakes: A great place for hiking and mountain biking in the summer, skiing and snowmobiling in the winter.
McMinn's Reservoir: One of the best known ski areas in the northwest, with Soligo, McCormick, Phelps, and 35 lifts. In the summer you can hike a lift to the Wild Red spring and back down.
Sublimus Falls: A great, unusual scene of sunset with just a few clouds glowing. Part of the route "from the floor to the roof" with forest trails.
Devils Gardens: A small, rocky forest meadow at edge of a forest lake flow, with tall grass, lupines, and other plants. Admired in the area for the Apple Mountain meadows.
Elk Lake & Reservoir Lakes: Two wonderful lakes with meadows and tall mountains in the background. Elk Lake is popular for fishing and waterfowl. Reservoir is a good fishing lake.
Cascade Lakes: One of the few lakes along the byway with a view of Mt. St. Helens. The area over Reservoir is surrounded by pine trees. Lake Cascade, just to the north, is much smaller and more serene.
Drainage Observation Points: A short walk takes you to a meadow at the edge of Cascade Point Reservoir. Here's where you'll see.

Deschutes National Forest
200 East Main St.
Bend, OR 97701
(503) 325-3229

Ochoco National Forest
2000 N. 2nd Street
Prineville, OR 97530
(503) 438-6528

MEMBER OF NATIONAL VOLCANIC MONUMENT SCENIC BYWAYS
• Cascade Lakes
• Multnomah Falls
• Hood
• Wild & Scenic Rivers Watershed Areas

<http://www.fs.fed.us/r6/centraloregon/recreation/special/byways/caslakes.shtml>



Scenic Byway website photo



Scenic Byway website photo





50. Central Cascades Geotourism Site

**CENTRAL CASCADES
GEOTOURISM PROJECT**
Oregon & Washington

— EXPLORE —
**GEOTOURISM
LOCATIONS**

— GET TO KNOW THE —
**CENTRAL
CASCADES**

— INFORMATION ON —
**SUSTAINABLE
TRAVEL**

Enjoy Insights into the Rich Culture and Natural Wonders of the Central Cascades...From the People Who Live Here

The sheer beauty and grandeur of the Central Cascades of Oregon and Washington will make any visitor give pause. But the many stories resting in the region's foothills, high deserts and mountain communities will inspire you to linger and explore. The National Geographic Society has collaborated with community members of the Central Cascades to illuminate the places and experiences that residents think are special. Some of the special qualities that define the Central Cascades are explored below.

The National Geographic Central Cascades Geotourism Map/Guide

The National Geographic Society has partnered with Travel Oregon and Washington State Tourism to capture the history and heritage of the Central Cascades Region. The results are captured here—and in a central, interactive map app.

[Go over Central Cascades Geotourism Map/Guide](#)

WHAT IS GEOTOURISM?

Geotourism is tourism that sustains or enhances the geographical character of a place—its environment, heritage and the well-being of its residents.

CENTRAL CASCADES THEMES

If you're new to the region, here are some themes that will help you get to know the Central Cascades of Oregon and Washington.

EXPLORE
CENTRAL CASCADES

<http://thecentralcascades.com>

**CENTRAL CASCADES
GEOTOURISM PROJECT**
Oregon & Washington

— EXPLORE —
**GEOTOURISM
LOCATIONS**

— GET TO KNOW THE —
**CENTRAL
CASCADES**

— INFORMATION ON —
**SUSTAINABLE
TRAVEL**

Cascade Lakes National Scenic Byway

Find out National Forest - Cascade Lakes Recreation Area, Jewell, OR 97626
High Altitude

National Geographic Map Locations
Natural Areas and Attractions
Travel Along, Trail and More

This 66-mile historic highway was selected by *Scenic America* as one of the nation's 10 most important byways, outstanding for its intrinsic scenic, natural and recreational qualities. It became a National Scenic Byway in 1998 and provides a way of getting in touch with the pulse of communities and cultures in Central Oregon. A historic guard station at the heart of the byway is where volunteers interpret the Forest Guard and byway stories are shared with visitors and residents alike. The alpine lakes are set within a volcanic landscape and inspiring mountains in Central Oregon's high country, where recreation activities, events and an interpretive site near provide the ideal setting for learning and interacting with nature.

Forest stewardship zones on the byway at a proposed Wildlife Station to the Deschutes National Forest, to be staffed by community volunteers and the Forest Service. A journey for learning begins at Gateway Interpretive Sites at both ends of the byway and continues through a multitude of interpretive sites, trails and viewpoints along the byway. This byway is connected to the community through a grassroots initiative to enhance the area's economic vitality while protecting scenic, cultural and natural resources through conservation education and messages of low-impact behavior.

- Seasonal availability, June to October
- Visitor center
- ADA accessible
- Trained guides available
- Interpretive signage
- Fee required for parking

Get more information on this area
www.TravelOregon.com

<http://thecentralcascades.com/cascade-lakes-national-scenic-byway/>





Appendix C: INTERDISCIPLINARY TEAM AND CREDITS

Interdisciplinary Team Leader:

Robin Gyorgyfalvy - Landscape Architect and Writer/Editor

Interdisciplinary Team Members:

Elizabeth Johnson, Ecologist, Interpretive Specialist and Writer

Paul Brna, Silviculturist

Tom Walker, Fisheries Biologist

Les Moscoso, Recreation Planner

Julie York, Wildlife Biologist

Dave Frantz, Environmental Specialist

Janine McFarland, Heritage

Lisa Anheluk, Facilities Engineer

Rick Dewey, Botanist

Bart Wills, Geologist

Kelly Chambers, GIS

Maureen Durrant, GIS

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Darcy McNamara

Kris Vezina

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Dennis McGregor

Graphics and Layout:

Ideas To Inks

Photo Credits:

Recently installed interpretive sign at North Gateway Scenic Byway Viewpoint. Photo: Tim Skaggs.

View of Mt. Bachelor from Sparks Lake. Photo: Robert Jensen.

Skiing at Todd Lake with view of Broken Top. Photo: Penny Arentsen.

View of South Sister and Broken Top from Sparks Lake, Fishing on Hosmer Lake, Photos: Deschutes & Ochoco National Forests website, Fishing page.

View of Mt. Bachelor from Little Lava Lake. Photo: Mark R. Johnson.

Aerial view of Davis Lake flow. Photo: Oregon NAIP09 1-meter imagery.

Twin Lakes (middle) with Crane Prairie Reservoir (top), Deschutes River (left), and Wickiup Reservoir (bottom). Photo: Deschutes & Ochoco National Forests website, Geology.

Fall River Guard Station. Photo: Deschutes & Ochoco National Forests website, Rentals.

Green Lakes Trailhead, Deschutes Bridge Guard Station. Photos: Les Joslin.

Scenic Byway website photos. Photos: Martin Gyorgyfalvy.

All other photos by Robin Gyorgyfalvy and Elizabeth Johnson.



