

Interpretive Master Plan

for the

Ice Age Floods in Washington State Parks

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Introduction

Using This Plan

Key Points

When using this plan, it is important to keep in mind the following key points:

1. This plan was developed by an outside consultant who was not privy to all the issues within the WSPRC as a whole and within each park. Therefore, the recommendations must be considered within the context of the WSPRC system to arrive at actions and prioritization of those actions. Also, the recommendations are based on the context today. As audiences, goals, parameters and opportunities change, the recommendations should be evaluated and modified to reflect those changes.
2. This plan focuses on interpreting the Ice Age Floods in Washington State Parks; it is not a complete interpretive plan for each of those parks. Therefore, all recommendations for strategies for interpreting the floods must be considered in the context of other interpretive and recreational opportunities within each park.
3. Although the plan was reviewed by geologists and others with a significant depth of knowledge about the Ice Age Floods, the information in the plan should be checked and verified before including it in an interpretive strategy. As noted in several places, the technical specialists involved in the planning effort did not always agree on information relating to sites within this plan.

How to Use this Plan

This Interpretive Plan was developed so that it could be used as a reference manual by a wide variety of people and entities, including State Parks staff, consultants, contractors, designers, and local communities interested in developing interpretive strategies about the Ice Age Floods. It provides a hierarchy of themes and storylines that can be used to develop interpretive strategies that are consistent in terms of the stories being told; a concept for an interpretive and wayfinding network that can be adapted to other sites; and recommendations for Washington State Parks and other related sites that can be used to determine the role a site or community might play in enhancing the network by developing complementary interpretive and wayfinding opportunities. The following information is intended to guide specific user groups on how they might use the plan and what sections of the plan might be most useful.

Washington State Parks Staff

Staff can consult the plan for recommended interpretive and wayfinding strategies in their park and use the information in developing future budgets and preparing requests for proposals. In Master Planning efforts, the recommendations in the plan can be considered in developing site plans and prioritizing actions within the park.

Designer

A designer can use the theme section and design concept section for guidance in developing a design for specific Ice Age Floods strategies contained in the document, and can use the theme section for guidance on themes and storylines for Ice Age Floods interpretive strategies not included in the plan.

Communities in or adjacent to the flood region

Communities can consult the plan for the wayfinding and interpretive network concept to determine what role they might play in the visitor experience of the Ice Age Floods, and what interpretive and/or wayfinding strategies are most appropriate for sites or facilities within their community. Themes, sub-themes, stories and design concepts can be used to guide design of both interpretive and wayfinding strategies.

Field Trip Leader

Prior to leading a field trip to a Washington State Park or along the pathway of the Ice Age Floods, a field trip leader can use the plan for details about each park site and what is the most important story to tell at that site. Each stop along the route can then be woven together to interpret the landscape more completely.

Classroom Teachers

Prior to bringing a group of students to a Washington State Park visitor center or park for a field trip, a teacher may consult the plan to understand the key elements in the Ice Age Floods story that are applicable to the field trip site. With this information, a teacher can prepare their students to understand the focus of the field trip and how a particular site fits into the overall story.

Introduction

Plan Background

Introduction

During the last Ice Age, some 13- 15,000 years ago, a series of catastrophic Ice Age Floods swept across eastern, central and southern Washington, sculpting and altering the landscape in the blink of an eye in geologic time. The flood waters scoured new channels, created immense cataract waterfalls, left huge gravel deposits, stripped topsoil and significantly influenced how humans use the land today. The most significant of these floods in terms of impacts to the physical landscape are currently thought to have originated from Glacial Lake Missoula, which covered a vast area in what is now eastern Montana. These are commonly referred to as the Missoula Floods. However, other smaller floods are known to have originated from Glacial Lake Columbia, which was located in northeastern Washington. The Lake Bonneville Flood also affected Washington, but the impact was confined to the Snake River area. Finally, some people speculate that other floods originated from bodies of water under the ice sheet. Regardless of the source, Ice Age Floods were a major force in shaping a large part of Washington.

Much of the impact of the Ice Age Floods is concentrated in central and eastern Washington, which bore the brunt of the initial force of the floods. The State Parks in this region are uniquely positioned to interpret this major geomorphologic event either because the park contains key features or is proximate to key features. Many State Parks within the flood region offer some form of interpretive information related to the event, but those opportunities were developed independent of other park units, resulting in gaps in the story and some duplication. Many of these interpretive opportunities are also outdated.

In February 2001, The National Park Service (NPS) released the “Ice Age Floods Study of Alternatives and Environmental Assessment” that analyzed several alternatives for a national designation in the four-state area (Montana, Idaho, Washington and Oregon) impacted by the Missoula floods, and identified key areas for interpretive and wayfinding (orientation) opportunities, the bulk of which are in Washington State.

The Washington State Parks and Recreation Commission (WSPRC) is seeking to upgrade existing interpretive opportunities related to the Ice Age Floods in the State Parks and develop additional opportunities. However, these need to be developed within the context of an integrated network so that each opportunity can function on its own and as part of a larger network integrated not only with other WSPRC units, but with Scenic Byways, museums and the interpretive efforts of other public agencies across the four states within which the floods occurred.

This plan is the first step in an effort to develop a coordinated, statewide network of interpretive and orientation strategies associated with the Ice Age Floods that will also form the basis for a larger network encompassing the four states. To that end, this plan identifies a common vision for the interpretive and wayfinding network encompassing the WSPRC units included in the planning effort (depicted in Figure 1) that can be used as a template by other sites outside the State Park system.

Process

The plan was developed in two major phases:

Phase I:

Gathering and assessing key background information, identifying overarching themes (messages/concepts) and developing the interpretive concept. The background information included goals, target audiences, parameters affecting the development and functioning of the information network and opportunities for interpretation.

Phase II:

Development of the plan. This involved developing the theme hierarchy, media prescription (wayfinding and interpretive strategies), cost range estimates and implementation plan.

Plan Goals

Introduction

The mission of the Washington State Parks and Recreation Commission (WSPRC) is:

The Washington State Parks and Recreation Commission acquires, operates, enhances and protects a diverse system of recreational, cultural, historic and natural sites. The commission fosters outdoor recreation and education statewide to provide enjoyment and enrichment for all, and a valued legacy to future generations.

The word 'enrichment' in the 21st century of management can be interpreted to include facilitating economic benefits to surrounding communities, especially rural communities, specifically through fostering sustainable tourism opportunities.

In October 2003, in anticipation of its centennial as a State Park system, the WSPRC developed its Centennial 2013 Vision:

"In 2013, Washington's state parks will be premier destinations of uncommon quality, including state and regionally significant natural, cultural, historical and recreational resources that are attractive for public experience, health, enjoyment and learning."

Within the plan, one of the "Legacy" projects is to "Unveil the Mystery of the Ice Age Floods." In summary, interpreting the Ice Age Floods in the Washington State Parks not only fits within the broad purview of the mission statement, but is a specific goal identified by the agency.

Information Network Objectives and Desired Outcomes

The following information network objectives and desired outcomes were derived from the agency mission.

Objective 1 and Associated Desired Outcomes

Objective 1:

Protect and conserve Ice Age Floods features in the parks while using them to provide recreational and educational experiences.

Associated Desired Outcomes:

- 1-1: An increase in the sense of appreciation and personal value to visitors for the features associated with the Ice Age Floods event and story specifically, and as an extension, to natural and cultural resources in general. This outcome can be accomplished in part by making visitors aware of the value of intact resources as a tool for discovering the 'story' of our past
- 1-2: An increase in awareness among users of personal impacts to the features associated with the floods and ways those impacts can be minimized. This outcome will contribute to a stronger stewardship ethic and a decrease in negative impacts due to ignorance.

- 1-3: An increase in appropriate use patterns and behaviors among park visitors and those who take part in interpretive opportunities related to the floods that take place outside of park boundaries.
- 1-4: An increase in awareness of the story of the Ice Age Floods and the impact the floods had on the physical landscape and on subsequent cultural use of the land and its resources.

Objective 2 and Associated Desired Outcomes

Objective 2:

Increase public support and strengthen the constituency for WSPRC and the other agencies and entities involved in protecting Ice Age Flood features, and increase support for development of a complete network of interpretive opportunities related to the Ice Age Floods.

Associated Desired Outcomes:

- 2-1: An increase in the appreciation and personal value to visitors for Ice Age Floods features and associated interpretive opportunities provided at the parks specifically, and in the surrounding areas in general.
- 2-2: An increase in awareness of the identity of the WSPRC and other partners responsible for the interpretive opportunities at the parks and at other sites associated with the floods.
- 2-3: An increase in satisfaction by park users as a result of the information network in the parks and surrounding areas associated with the Ice Age Floods.
- 2-4: An increase in appreciation and approval of WSPRC due to the agency providing high quality interpretive, recreational, and/or educational experiences associated with the Ice Age Floods.
- 2-5: An increase in awareness of and interest in the existing array of interpretive opportunities related to the Ice Age Floods, and the complementary nature of those opportunities, in Washington State.
- 2-6: An increase in awareness of and support for the planned interpretive and wayfinding network associated with the Ice Age Floods in Washington State.

Objective 3 and Associated Desired Outcomes

Objective 3:

A significant increase in the number of visitor days from target markets at State Parks and at related sites within the flood region specifically due to a desire to learn more about and/or see features associated with the Ice Age Floods.

Associated Desired Outcomes:

- 3-1: An increase in awareness on the part of the potential traveler of the array of desirable visitor opportunities associated with the Ice Age Floods at each park, in the surrounding area, in other WSPRC units, and in the rest of Washington State. This outcome can be accomplished in part by creating more opportunities (i.e. developing the interpretive opportunities recommended in the plan) and/or by a more effective wayfinding network that increases awareness of other opportunities and makes it easier for people to plan and take trips to sites with Ice Age Floods features.

- 3-2: An increase in the perceived value of the interpretive experiences associated with the Ice Age Floods. This can be accomplished by increasing the array of opportunities and/or by increasing the quality of experiences desired by target markets.
- 3-3: An increase in the number of people from communities surrounding the park units using interpretive opportunities associated with the Ice Age Floods. A major reason people travel in general is to visit friends and relatives. Having nearby residents take visitors to interpretive opportunities at park sites will increase word-of-mouth advertising, which can lead to greater visitation from target markets outside the state. This desired outcome can be accomplished in part by increasing the number of opportunities tailored to the interests of residents and the characteristics of that target market.
- 3-4: An increase in the number of sites associated with the Ice Age Floods visited on a single trip by individual travelers. Increased visitor awareness of related interpretive opportunities in the area and increased motivation to visit those sites along with a very effective trip planning and wayfinding network will help visitors to plan and engage in an experience encompassing multiple sites and opportunities. The motivation is accomplished in part through the linkage of different 'chapters' of the story through an integrated network and by increasing awareness of those related opportunities. In essence, the network must interest visitors in the overall story and then facilitate visits to a number of other related sites to "read" a different chapter of that story.

Glossary of Terms

The following terms are used in this document:

Gateway Community – A term used in the NPS study of the Ice Age Floods for communities on the edge of the flood region that are essentially ‘gateways’ into the flood region and presumably into the interpretive experience associated with the event. The term ‘portal’ is also be used for this type of community.

Hub Community or Hub Interpretive Site – Used to designate a site or community from which a person could explore the surrounding area to learn about the Ice Age Floods. Moses Lake is a good example of a Hub Community. Dry Falls Interpretive Center is a good example of a Hub Interpretive Site.

Information Network – The entire set of interpretive and wayfinding strategies that support a visitor’s experience at a site or in an area.

Interpretive Network – The set of informal education strategies for an area, such as signs, exhibits and presentations. The content of these strategies focus on culture, history, natural history and management of an area.

Media Prescription – This is the set of recommendations for interpretive and wayfinding strategies in the planning area, such as talks, presentations, exhibits, signs, kiosks, brochures, and interpretive trails. It typically identifies and describes the strategy, identifies the location for the strategy and provides a conceptual design to provide information to the designer for future development.

Opportunity – This is the same as a strategy, but from a visitor’s perspective. To the planner, it is a strategy for communicating; to the visitor, it is an opportunity to get information.

Starting Point – In a wayfinding and interpretive network, Starting Points are the places the target audience can be reached to start their Ice Age Floods experience. Homes, rest areas, hotels, and State Parks are all potential Starting Points. The key to an effective network is to locate strategies at Starting Points that excite people about the story and then guide them to Story Points.

Story Point – A site where the features in the surrounding landscape create a good opportunity to tell a story. Dry Falls and Palouse Falls are examples of good Ice Age Floods Story Points because the story of the event is told in the landscape.

Strategy – A sign, brochure, presentation or some other technique for communicating information.

Universal Design Standards – Standards for the design of facilities, sites, products, services and environments that accommodate the widest range of potential users, including people with mobility, visual and auditory impairments and other special needs.

Wayfinding Network - The set of information strategies focused on orienting a person to an area and guiding that person to all sites and features in the area. It includes maps, directional signs, confidence markers along highways and labels identifying features and locations. This has also been called an orientation network.

Recommended
Ice Age Floods
Information Network

Recommended Ice Age Floods Information Network

Introduction

An information network consists of three key components – the network of information and strategies for guiding people to and around sites with interpretive strategies (the wayfinding network); the themes or messages to be communicated in the interpretive network; and the delivery system for communicating those messages (the interpretive network). The following philosophy was used as a set of guidelines for identifying themes, and developing the network of interpretive and wayfinding strategies and locations for those strategies.

Philosophy

People are more likely to believe what they read or hear if they can see supporting evidence at the same time. This has several implications:

- Artifacts, specimens, features and other sensory stimuli should be the focal point of the visitor experience. This is why visitors should be encouraged to explore the surrounding landscape and use the interpretive trails, where they can experience the ‘real thing.’
- Information should be proximate to, subordinate to and complement these sensory stimuli rather than trying to compete for the visitor’s attention. That is the rationale behind using low-angled interpretive panels when interpreting outdoor features. In such instances, the panel is simply a label for the feature, and is designed and positioned to allow clear visual access to, and focus on, the feature.
- Indoor exhibits should strive to use real objects and to engage as many senses as possible.
- Interpretive opportunities should focus on reinforcing stories already exemplified in the surrounding cultural and/or natural environment. In this project, the story has been determined – the Ice Age Floods. Consequently, the focus for interpretive opportunities is on features associated with or affected by that event, including subsequent cultural activities.

People have limited leisure time and unlimited opportunities to spend it, so they must make decisions. People make those decisions on the basis of effort (cost) and reward (benefit). In other words, “What is this activity going to cost in terms of time, money, physical and mental effort, etc.?” compared with, “What benefits am I going to get out of participating?” People tend to determine the cost-benefit ratio for their options, and then select the options with the best ratio. This also has several implications when setting up an information network:

- One focus of the design of an information network should be to lower effort through effective wayfinding. Another focus should be to increase reward through addition of quality interpretive opportunities. The overall result will be a more favorable ratio of reward to effort for the network as a whole, and hopefully, more use. This is especially important if one desired outcome is for visitors to spend more time (cost) and energy (cost) to use the interpretive trails or explore the parks and surrounding areas where visitors can really ‘see’ the story that is being told.

- In addition to addressing the reward to effort ratio for the overall experience, the design of individual interpretive opportunities must adhere to the same concept. If an opportunity is perceived to have a poor ratio for whatever reason—hard to read, hard to understand, boring subject, technical headings, small text or a myriad of other factors—the chances of it being used are reduced.

People are receptive to different types of information at different places in the continuum of their experience. For example, at the beginning of a visitor experience in a site or area, visitors are typically interested first in wayfinding information. They are more likely to be interested in interpretive information when they are comfortable in their ability to find their way in the new environment. Consequently, the network should be designed so visitors are more likely to encounter wayfinding information first. Based in part on this concept, effective communication networks often contain the following types of components.

- ***Wayfinding Information:***

Information that allows a visitor to function in an environment, such as a listing and location of opportunities, activities, restrooms and other amenities, and places for more information. A map is a basic and common wayfinding device. Wayfinding information is critical. Feeling comfortable in an unfamiliar environment is essential to being receptive to interpretive information. Since wayfinding is a need, it must be offered at the beginning of a visitor's experience to a site in such a way that it is easily accessible to all visitors, whether the site or facility is crowded or not. Since one goal of the effort is to motivate visitors to explore the surrounding environment and visit other State Park sites associated with the Ice Age Floods, wayfinding information for the area must also be available. A visit to a park is not just the beginning of an experience at that park; it may be the beginning of an extended experience encompassing a wide variety of sites both within the WSPRC system and outside that system.

- ***Interpretive Information:***

This is information that helps the visitor understand the messages you wish to communicate. A typical interpretive network consists of the following components:

- ***Grabbers:***

These are easily accessible, high reward strategies that are intended to grab a visitor's attention, pique curiosity and attract the visitor to other interpretive strategies. For example, table teasers in restaurants in Moses Lake should grab a visitor's attention and entice him or her to travel up the Coulee Corridor National Scenic Byway and visit Lake Lenore Caves, Dry Falls, and points beyond. Every interpretive site in the network should contain grabbers marketing related interpretive experiences at other sites in the network.

- ***Thematic Orientation or Overview:***

These opportunities function like the executive summary in reports—they give the visitor the big picture so the details make sense. It should communicate the key themes so visitors will understand the basic messages even if they do not visit every opportunity. Thematic overview usually occurs just after wayfinding within the continuum of information availability, and should be located in the place in the interpretive experience with the maximum number of participants at a single place. In this project, some level of thematic overview will be necessary at each site that offers interpretive information; otherwise it will be difficult to place the story at that site in the larger context of the Ice Age Floods. For example, talking about the floodwaters emptying into the Pacific with their load of sedi-

ment at Cape Disappointment State Park will be difficult to understand without understanding the magnitude and pathway of the flood, which would help explain why it could carry such a large amount of material.

- **• Holders (Detail):**

These are higher effort, often less visible opportunities that provide the detail in an interpretive network. In this project, interpretive trails are good examples of holders.

If you put these concepts together and overlay them on a physical landscape, the result is a network with:

- Grabbers in prominent places to attract users into the information network and different sites within the network;
- Wayfinding and thematic overview located in easily accessible locations at the beginning of the visitor experience – at whatever site that experience begins;
- The meat of the interpretive experience, the detail, concentrated in site-specific interpretive opportunities.

This philosophy was used to develop the theme hierarchy and concept for the network of interpretive and wayfinding opportunities for the Ice Age Floods in the Washington State Parks included in this project.

Information Included

The following sections contain the theme hierarchy followed by the wayfinding and interpretive networks, each of which contains a description of the strategies being recommended for that part of the overall network. Information for each strategy contains the following information:

Location: This identifies location for fixed strategies, such as panels, and suggested locations for non-fixed strategies such as walks.

Key Objectives: In general, all sets of interpretive strategies associated with the Ice Age Floods have to provide an overview of the story to provide context for the specific focus on that strategy, have to market the overall experience, and have to facilitate exploration and discovery. Therefore, the following general objectives will apply to all strategies:

After taking advantage of this interpretive opportunity, participants will:

- Know the general story of the Ice Age Floods;
- Know that the story of the floods is written in the landscape;
- Have a sense of the magnitude of the floods, both in terms of the height of the flood waters and the extent of land affected;
- Be inspired to learn more;
- Know that State Parks within the flood region have Ice Age Floods interpretive opportunities;
- Be motivated to explore the environment within the flood region and learn more about the story;
- Know that the Ice Age Floods significantly affected the physical environment in the flood region, and as a consequence, the biotic components living in the environment;
- Know that the Ice Age Floods have affected and continue to affect human activities in the flood region.
- Be inspired to visit other State Parks;
- Be inspired to purchase a Regional Explorer's Guide, an Ice Age Floods Auto

Tour and/or some other strategy to facilitate exploring and discovering the story;

- Know where to obtain additional information.

Additional objectives, specific to the interpretive strategy being described, are included in the Key Objectives for that strategy.

Description and Concept: This provides additional direction and/or clarification for the designer in the form of a description of the strategy and a concept if appropriate. Concepts have been prepared for all interpretive panels because the content is fixed. However, they have not been prepared for such strategies as talks because the content can vary. Note that the purpose of the description and concept is to clarify, for the designer and client, the intent of the interpretive strategy and to provide one possible starting place for design. It is not a recommended design. As long as the concept clarifies the intent of the panel, it has served its purpose, regardless of whether ten other concepts could be used in its place. Those other concepts and other ideas for design are appropriate for discussion during the design phase of this project, which will be a part of another contract.

It should also be noted that although the number of panels and content for each panel is described, if there is too much information, additional panels can be used; if it can be consolidated, fewer panels can be used.

Comment: Anything not covered in the previous sections.

Wayfinding Network

Concept

In this wayfinding and interpretive network, story points are those sites where the story of the Ice Age Floods can be told because of the presence of features, such as coulees, erratics, and scabland features. The role of interpretive strategies is to tell that story. The role of wayfinding strategies is to guide people to story points so the story can be told. To do so, the wayfinding network must extend from the story points to starting points – places where the target audiences are starting their experience physically and/or intellectually, such as homes, cities and towns, lodging establishments and rest areas. Wayfinding strategies at starting points must capitalize on interpretive opportunities that interest and excite the visitor to then guide them to nearby story points. The network must also guide them from that story point to the next one and the next and the next. To create such a network, a variety of non-fixed opportunities must be developed as a follow-up to fixed opportunities. The fixed opportunities, such as Ice Age Floods Regional Orientation panels, make people aware of nearby story points within the context of the entire network of sites in Washington. The non-fixed opportunities, such as the Regional Ice Age Floods Orientation Map/Brochure, guide them to different sites within the network. At the site, fixed wayfinding strategies make visitors aware of other sites and once again, non-fixed strategies guide them to those sites, with the help of fixed directional, confidence markers along highway access routes and identification signs at sites.

Because of high visitation, parks such as Sun Lakes-Dry Falls, Steamboat Rock, Wenatchee Confluence and Lincoln Rock, are primary starting points because they can function effectively as distribution nodes where the combination of site-specific interpretive and wayfinding strategies are developed to excite people about the story, whet their appetite for more and send them out to explore the surrounding landscape and visit other State Parks and other Ice Age Floods sites where they can get more of the story. State Parks with lower visitation numbers are classified as secondary starting points. Figure 2 on the following page contains the classification of the State Parks in the flood region as primary or secondary starting points.

The next section contains a description of the strategies recommended for a complete wayfinding network for the Ice Age Floods in Washington State Parks and within the rest of the State.

Menu of Wayfinding Strategies

The following strategies are specifically for the wayfinding network that supports the interpretive experience for the Ice Age Floods in Washington State Parks. Strategies in this network appropriate for locations outside the State Parks are included because one major goal of the wayfinding network is to attract and guide people to the parks. After visitors have arrived at a park, the visitor can then use the general wayfinding network that includes site orientation panels, park map/brochures, identification labels and directional signage that are specific to the park rather than specific to the Ice Age Floods, and is, for the most part, already in place. Although many of the interpretive strategies have complete orientation and wayfinding information, such as tour guidebooks, descriptions of those strategies are included in the section covering interpretive strategies. Figure 3 contains sketches of the type of fixed strategies identified for the wayfinding network.

• *Primary Gateways*

Location

The Primary Gateways would be located on major highways entering the flood region. Ideally, the information on the gateway would then direct travelers to a nearby State Park, or other appropriate site, offering interpretive and/or wayfinding opportunities related to the Ice Age Floods. For example, a Primary Gateway along I-90 eastbound located about 1 mile from the turn-off to Ginkgo Petrified Forest could direct travelers to that site for more information.

Key Objectives

After interacting with this opportunity, visitors will:

- Be aware that they have entered the Ice Age Floods region;
- Be interested in finding out more about the phenomenon;
- Know where they can obtain more information.

Description and Concept

The gateway sign/structure is intended to raise awareness that travelers are entering a unique and intriguing geomorphologic region. It is designed to be visible to motorists, establish a visual brand (image) for the rest of the Ice Age Floods network of sites and interpretive opportunities, and welcome travelers to the 'Pathway of the Ice Age Floods.' The visual appearance of the structure is important given that it should at least reflect the 'branding' of the experience, but severe constraints exist regarding structural elements along interstates and possibly other highways. Although the visual impact of a structure that included columnar basalt would be an effective visual, the need for breakaway posts eliminate use of real columnar basalt as an option. One possibility is to develop a breakaway post or structure to resemble a combination of columnar basalt and water.

- ***Secondary Gateways***

Location

The Secondary Gateway would be located on secondary highways entering the flood region. Ideally, the sign/structure would then direct travelers to a nearby State Park, or other appropriate site, offering interpretive and/or wayfinding opportunities related to the Ice Age Floods.

Key Objectives

After interacting with this opportunity, visitors will:

- Be aware that they have entered the Ice Age Floods region;
- Be interested in finding out more about the phenomenon;
- Know where they can obtain more information.

Description and Concept

The Secondary Gateway is similar to the Primary Gateway but smaller.

- ***Regional Ice Age Floods Orientation Panel***

Location

These panels would be installed at primarily at primary story points within the State Parks. Specific locations are noted in the recommendations for each park. In addition, they should be installed at rest areas within or adjacent to the flood region, accompanied by an interpretive panel designed to spark interest in the Ice Age Floods.

Key Objectives

After interacting with this opportunity, visitors will:

- Be motivated to learn about the Ice Age Floods by exploring the region and visiting other state parks and associated sites within the region;
- Have the Regional Ice Age Floods Orientation Map/Brochure;
- Feel comfortable in their ability to find their way to and around the region;
- Feel like spending some time taking advantage of the interpretive opportunities;
- Be aware of all the major Ice Age Floods interpretive opportunities in the region;
- Be aware of the opportunities that are fully accessible.

Description and Concept

The intent of this panel is to make travelers aware of the extensive network of Ice Age Floods interpretive opportunities in State Parks as a whole [and other appropriate sites] and orient them to the region in relation to nearby interpretive opportunities. This strategy is envisioned as a flat-plate panel featuring a stylized statewide map depicting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of a specific region with Ice Age Floods interpretive opportunities in that region highlighted and described. State Parks would be emphasized. The opportunities would be highlighted using enlarged photographs of people engaging in those opportunities. Ideally, the panel or associated structure would have a brochure holder for distributing the Regional Ice Age Floods Orientation Map/Brochure. We recommend a minimum of 4 regional panels corresponding to the following regions:

- ***Spokane-Cheney Region.***

This area includes Riverside SP, Centennial Trail, the northern section of the Columbia Plateau Trail, and Mount Spokane SP.

- *Moses Lake-Wenatchee Region.*

This area includes Potholes SP, Lake Lenore Caves, Sun Lakes-Dry Falls SP, Crown Point State Heritage Area, Bridgeport SP, Fort Okanogan SP, Daroga SP, Lincoln Rock SP, Wenatchee Confluence SP, Ginkgo Petrified Forest SP, and Wanapum Recreation Area.

- *Tri-Cities Region.*

This area includes Palouse Falls SP, Lyons Ferry, Sacajawea SP, Yakima Sportsman SP and the 'The Reach' Interpretive Center.

- *Lower Columbia River Region.*

This area includes Columbia Hills SP, Maryhill SP, Beacon Rock SP and Cape Disappointment SP.

- *Regional Ice Age Floods Orientation Map/Brochure*

Key Objectives

After interacting with this opportunity, visitors will:

- Be motivated to learn about the Ice Age Floods by exploring the region and visiting other state parks and associated sites within the region;
- Have the Regional Ice Age Floods Orientation Map/Brochure;
- Feel comfortable in their ability to find their way to and around the region;
- Feel like spending some time taking advantage of the interpretive opportunities;
- Be aware of all the major Ice Age Floods interpretive opportunities in the region;
- Be aware of the opportunities that are fully accessible.
- Have a simple map of the area showing how to access the parks;
- Have contact information;
- Know where to get additional information.

Description and Concept

Fixed orientation strategies can function effectively as tools for raising awareness and orienting people to surroundings, but they do not function effectively as wayfinding strategies because people cannot remember all the information on the map. They prefer to have such information available at their fingertips. That is why the Regional Ice Age Floods Orientation panels should each have associated map/brochures. These publications are intended to provide brief, user-friendly orientation to each region and the associated Ice Age Floods interpretive opportunities in that region, with emphasis on the State Parks. The publications should be small enough to be carried easily, and should be available to people free of charge. Each should include the following elements:

- Map showing how to get to each State Park in the region;
- Smaller map of the entire statewide Ice Age Floods interpretive network with State Parks highlighted;
- Brief description of the interpretive opportunities in parks in the region;
- Where to get additional information (such as the web site);
- Related sites to visit.

Comment

Ideally, this brochure would use the same graphic style as the Regional Ice Age Floods Orientation Panels.

- ***Floodpath Highway Markers***

Location

On highways within the flood region.

Key Objectives

After interacting with this opportunity, visitors will:

- Be reminded that they are within the Ice Age Floods region if they are already aware of the floods;
- Be motivated to find out what the marker signifies if they are not already aware of the floods.

Description and Concept

The intent of this marker is to continually reinforce the message that the Ice Age Floods region is a unique and special place, worthy of being marked with highway markers. It can be as simple as a marker with the Ice Age Floods logo. A series of highway makers can be designed to reflect different Ice Age Floods auto tour routes. The purpose of such markers in that case is to reassure travelers that they are still on the right road.

- ***Floodpath Trail Markers***

Location

On trails within the flood region that have significant features related to the Ice Age Floods, and that have interpretive information associated with the floods.

Key Objectives

After interacting with this opportunity, visitors will:

- Be reminded that they are within the Ice Age Floods region if they are already aware of the floods;
- Be motivated to find out what the marker signifies if they are not already aware of the floods.

Description and Concept

The intent of this sign type is to continually reinforce the message that the Ice Age Floods region is a unique and special place, worthy of having trails designated with Ice Age Floods markers. The Centennial Trail and Columbia Plateau Trail should both have such markers, as should interpretive trails within State Parks that have Ice Age Floods interpretive opportunities, such as in Steamboat Rock, Columbia Hills, Palouse Falls, Dry Falls and Sun Lakes.

- ***Floodpath Trail Markers***

Location

On trails within the flood region that have significant features related to the Ice Age Floods, and that have interpretive information associated with the floods.

Key Objectives

After encountering this strategy, visitors will:

- Be reminded that they are within the Ice Age Floods region if they are already aware of the floods;
- Be motivated to find out what the marker signifies if they are not already aware of the floods.

Description and Concept

The intent of this sign type is to continually reinforce the message that the Ice Age Floods region is a unique and special place, worthy of having trails designated with Ice Age Floods markers. The Centennial Trail and Columbia Plateau Trail should both have such markers, as should interpretive trails within State Parks that have Ice Age Floods interpretive opportunities, such as in Steamboat Rock, Columbia Hills, Palouse Falls, Dry Falls and Sun Lakes.

- *Ice Age Floods Site Identifier*

Location

This sign type is located near or at every park to identify that site as an Ice Age Floods site. One possibility is to locate them along the highway, about 1/4-mile before the turn-off, similar to Highway Heritage Markers. In addition, it could be located at a prominent location within the park to emphasize the park's status as an Ice Age Floods site. Note that we are recommending one identifier per park; not one for every Ice Age Floods interpretive opportunity within the park. Ideally, if the network is adopted by others, the site identifier would identify all Ice Age Floods sites with public access that have associated interpretive information, whether by a fixed sign or in a guidebook.

Key Objectives

After encountering this strategy, visitors will:

- Be aware that the site has interpretive opportunities associated with the Ice Age Floods if they are already aware of the floods;
- Be motivated to find out what the marker signifies if they are not already aware of the floods.

Description and Concept

This is a small panel or sign type that includes the Ice Age Floods logo and the words 'Ice Age Floods site.' Ideally it would be designed with room for an agency logo also. This sign type will serve two purposes. First, it will identify sites that contain interpretive opportunities related to the Ice Age Floods. Second, for travelers who recognize the identifier and know what it means, it has the potential to send/reinforce the message that the floods covered a huge area. For example, imagine a visitor to Cape Disappointment who encounters the sign and understands what it means, who then encounters the same identifier at Riverside State Park in Spokane, or in Missoula, or at Sacajawea State Park, or at Wenatchee Confluence, or better yet, at all of those locations. In that scenario, the identifier becomes a powerful device to communicate the extent of the floods.

- *WSPRC Ice Age Floods Web Site*

Key Objectives

In addition to the general objectives noted in the introduction, after interacting with this opportunity, visitors will:

- Want to visit the nearest State Park with Ice Age Floods interpretive opportunities and also to visit the primary story points, such as Palouse Falls and Dry Falls;
- Know the major themes associated with the Ice Age Floods story;
- Have (if desired) one or more simple regional maps identifying State Parks and associated sites with interpretive opportunities.

Description and Concept

The Web Site should contain information to market the Ice Age Floods interpretive experience, an overview of the story, and general orientation information. It should also contain phone numbers and other information so browsers could call to get a visitor's packet or other site-specific information. The keys to an effective web site are as follows:

- A home page that downloads quickly;
- Organized so a visitor can find exactly what he or she wants very quickly through linkages;
- Enough information and links so the visitor can plan a visit or a tour of sites;
- Telephone numbers, addresses and e-mail addresses where more information can be obtained;
- Suggested itineraries and/or routes;
- Up-to-date information on what to do, including special events.

Ideally, this strategy would grab the attention of potential visitors, pique their interest, and provide trip-planning information in their homes. This strategy needs to be updated constantly to provide information on special events and changes in the menu of opportunities and other important trip planning information.

Comment

Web sites are becoming a key tool in serving the independent traveler because an increasing number of travelers plan at least part of their trip using the web.

Themes and Storylines

Introduction

Themes and topics are not the same. A topic is a subject, such as 'the Ice Age Floods.' A theme is a statement or message about the subject, such as 'The Ice Age Floods had a significant impact on cultural use of the Pacific Northwest and on your life today.' Themes are the core of the stories that are told. In fact, stories are selected in order to communicate themes. Consequently, themes are determined before selecting and developing the interpretive strategies.

One method for selecting themes is to determine what stories are already being told in the surrounding natural and cultural landscape, and then translate those stories, through interpretation, so visitors understand.

Research confirms that people tend to remember overarching themes or concepts rather than the facts that are used to communicate those concepts. They still do not typically remember more than about three major concepts after an interpretive effort, if that many. Therefore, our goal is to select a few overarching themes to use as organizers for sub-themes and supporting stories.

Themes, Sub-Themes and Stories

The following overarching themes and related sub-themes are those concepts park visitors should understand about the Ice Age Floods. An additional theme is related to marketing. The last theme is a more general concept about stewardship visitors should take with them upon departure.

Theme 1

The landscape you see is the product of many forces working over a long period of time. The Ice Age Floods were the most recent major agents of change, sculpting the landscape on a massive scale over a rapid period of time to shape much of what we see today.

The intent of this theme is to focus on the magnitude and widespread extent of the impact of the floods while reinforcing the basic concept that the landscape is dynamic, changing constantly as a result of different forces, some of which act slowly and some of which act rapidly. This theme also reinforces the basic concept of linkages – nothing happens in a vacuum. Everything is influenced by the past and affects the future. Possible sub-themes and supporting stories include the following:

- ***Sub-Theme:***

A variety of forces combined over time to set the stage for and influence the Ice Age Floods.

- ***Supporting Stories:***

The stories that support this sub-theme focus on geomorphologic forces and their impact.

- *Plate tectonics caused land masses to move together to form larger land masses, and helped shape the land masses through differential pressure that caused uplift, tilting, warping, cracks and other characteristics of the landscape that affected the course and flow of the flood waters.*
 - *Cascade volcanoes built the mountain chain.*
 - *Columbia River basalt flows helped to form the vast Columbia River Plateau.*
 - *The continental ice sheet supplied water for the floods as well as influenced the pathway of the floods.*
- **Sub-Theme:**

The extent and type of impact of the Ice Age Floods was determined by past events.
 - **Supporting Stories:**

The stories to support this sub-theme focus on other geomorphologic forces and their impact on the floods.

 - *The tilt of the Columbia River basalts near Spokane and across much of the Columbia Plateau caused the water to pick up velocity, contributing to the erosive force and subsequent formation of scablands.*
 - *The columnar basalt that resulted from the Columbia River basalt flows was easily eroded by flood waters, which contributed to the formation of iconic features of the floods, such as Grand Coulee and Dry Falls.*
 - *The Cascades Mountains, formed by plate tectonics and volcanic activity, formed a barrier that helped determine the course of the flood waters.*
 - *The ice sheet created barriers to the flood waters, causing the formation of Grand Coulee and Moses Coulee.*
 - *Natural constrictions (such as Wallula and Sentinel Gaps) formed by past geomorphologic events caused impounding and led to depositional features.*
 - **Sub-Theme:**

The Ice Age Floods had large-scale impact over a large area.
 - **Supporting Stories:**

The stories to support this sub-theme focus on the impacts of the floods.

 - *The floods carved new landforms, such as the Grand Coulee and Palouse Falls and Canyon.*
 - *The floods significantly altered existing landforms, turning parts of eastern Washington into scablands, dumping huge amounts of material in the Quincy Basin and carving away rock to form the basalt cliffs along the Columbia River channel.*
 - *The floods affected the physical landscape in four states from Montana to the Pacific Ocean.*
 - *The undersea area off the coast that received silts and soils from the flood waters is larger than the land area affected by Glacial Lake Missoula and the Ice Age Floods. The length of the undersea area affected by deposits of silt and sediment from flood waters is longer than the overall reach of the waters on the land.*

Theme 2

The Ice Age Floods had a significant impact on cultural use of the Pacific Northwest and on your life today.

This theme is focused on the linkage between humans and the physical environment. The environment shapes human lifestyles by influencing how they use the land (a concept known as geo-determinism). In turn, humans shape the environment. Possible sub-themes and supporting stories include the following:

- **Sub-Theme:**

The Ice Age Floods significantly influenced travel and trade routes. Since transportation routes are a key to cultural development in and use of an area, the floods had impacts still felt today.

- **Supporting Stories:**

The stories supporting this sub-theme focus on how the floods affected the distribution of human activity - including settlement and transportation - on the landscape.

- *The distribution of key resources including topsoil (determined hunting and gathering and agricultural potential), water (including aquifers) and gravel (a key resource for road building) were influenced by Ice Age Floods. These resources determined travel and settlement patterns.*
- *The impacts of Ice Age Floods created new travel and trade routes, such as the Grand Coulee, and shaped other routes to facilitate their use (travel routes influenced how tribal cultures interacted with each other through contact, trading, languages, and intermarriage).*
- *Transportation routes at the time of Euro-American settlement were determined in part by landforms sculpted by the Ice Age Floods.*

- **Sub-Theme:**

The Ice Age Floods significantly affected the economies of the Pacific Northwest - past, present and future.

- **Supporting Stories:**

The stories supporting this sub-theme focus on the impact on agriculture.

- *The re-distribution of soil determined what crops could be grown where and whether agriculture was even a possibility.*
- *The wine growing industry in parts of Oregon and Washington depend on soils deposited by the Ice Age Floods.*
- *The story could also include impact on tourism.*

Theme 3

The composition and distribution of flora and fauna in the Pacific Northwest were affected significantly by the Ice Age Floods.

This is essentially an extension of the geo-determinism story to other biotic elements of the ecosystem. It allows a focus on the linkages between the biotic and physical environments and between different biotic components, such as wildlife and habitat. Possible sub-themes and supporting stories include the following:

- **Sub-Theme:**

The re-distribution of soil had significant impact on what plants could grow where, which in turn had significant impact on the presence and distribution of wildlife that depend on those plants.

- **Supporting Stories:**

The stories supporting this sub-theme focus first on species of plants that are growing or not growing in an area due to impact by the floods, and the consequent presence or absence of fauna that are tied to those species. This could perhaps be best illustrated by comparing the flora and fauna of a particular area from before the floods to after the floods.

- **Sub-Theme:**

The floods played a significant role in determining habitat for fish and wildlife.

- **Supporting Stories:**

The stories supporting this sub-theme focus on habitat formed in large part due to the floods.

- *Basalt cliffs eroded and shaped by flood waters are used by raptors;*
- *Wetland and riparian areas growing in areas carved by floodwaters are used by a variety of birds;*
- *Scablands support different vegetation and cover and consequently different species of wildlife;*
- *Much of the remaining shrub-steppe habitat in eastern Washington is in channeled scablands;*
- *Lakes in the Grand Coulee used by fish and waterfowl.*

Theme 4

The history of field research on the Ice Age Floods demonstrates how knowledge evolves over time, often through a combination of ideas and other advances in science, and the importance of perseverance.

The human story of J Harlen Bretz's struggle to have his theory of the Ice Age Floods accepted by the scientific community is both fascinating and instructive. First, it can communicate the importance of perseverance, especially in the field of scientific endeavor. Second, it can be used to communicate a classic process in the ongoing evolution of scientific knowledge. Although the story of Bretz and his battle with the scientific world appears brutal, it is not atypical. It is an example of a classic Hegelian dialectic – someone has a thesis, someone posits an antithesis, and the two sides struggle until a synthesis is reached. This process has repeated itself throughout human history and continues today. In communicating that story, it sends the message that we may not have everything right and there are things left to discover, including new ways to look at old stories. This is a good message for children – our potential scientists of the future. Possible sub-themes and supporting stories include the following:

- **Sub-Theme:**

The story of the Ice Age Floods evolved with input from a variety of sources.

- **Supporting Stories:**

The stories supporting this sub-theme include the work of others who were looking at additional aspects of the story, such as Pardee and Chamberlain.

- **Sub-Theme:**

Other advances in knowledge were a key to the scientific community accepting this theory.

- **Supporting Stories:**

The stories supporting this sub-theme focus on the impact technology has made, especially aerial and satellite photography, in the story of the evolution of understanding of this event. Early geologists did not have the tools available today.

- **Sub-Theme:**

Although other factors played a role in the eventual acceptance of the Ice Age Floods story, the perseverance and continuing exploration and study by Bretz was a key in the process.

- **Supporting Stories:**

The story supporting this sub-theme is the story of Bretz's struggles, with emphasis on the length of time it took for the theory to be accepted, the difficulties he faced, and the fact that he continued to study and refine his theory.

Theme 5

The landscape contains many stories about cultural and natural history that can be 'read' if I learn how.

We want people, especially children, to become 'detectives of the landscape,' always looking to see what is there and what it might mean. Such seeds could lead to the sprouting of a passing interest or a life career in science and many other related fields. At a minimum, this experience should foster a stronger connection to the land, natural resources and a stronger respect for nature because we become connected with quality of life through a pleasurable experience. Possible supporting stories include the following:

- **Supporting Stories:**

The stories supporting this theme are numerous. All of the interpretive opportunities, whether about cultural or natural history, focus on reading the landscape. The story of Bretz is also about him reading a story in the landscape.

Theme 6

Washington State Parks and the surrounding landscapes are fascinating places to visit and worth protecting as part of our State's heritage.

This is a marketing and support theme. We want people to support WSPRC and the best way to do that is to provide visitors with something they value. The more sites they visit and the more they enjoy experiences facilitated by the WSPRC, the more likely they are to support the agency. Possible sub-themes include the following:

- **Sub-Theme:**

Natural and cultural resources are an important to my quality of life.

- **Sub-Theme:**

Washington State Parks and Recreation Commission protects natural and cultural resources important to my quality of life.

- *Sub-Theme:*

I can help protect these resources in part by becoming a steward of the resource and supporting the WSPRC.

These messages are not communicated by telling specific stories but by providing a quality experience with gentle reminders and making sure the participant knows who was responsible for that experience.

Interpretive Network

Overview

The Ice Age Floods covered a vast area of landscape from the Bitterroot Valley and present day Missoula, Montana through eastern Washington, the Columbia Gorge and as far south as Eugene, Oregon in the Willamette Valley and west to the Pacific Ocean. The best place to tell a story about an event that affected the landscape is where the visitor can 'see' what is being said. In essence, the story of the Ice Age Floods is told in that entire landscape. With that in mind, the interpretive network must include opportunities for exploring that landscape, at least the landscape on public lands, regardless of jurisdiction. This can be accomplished by having nodes of fixed interpretive and wayfinding information combined with guidebooks, maps and other strategies that enable a person to explore and learn about the surrounding environment.

That is the concept used in planning the interpretive network for the WSPRC sites. To create such a network, a variety of non-fixed opportunities must be developed as a follow-up to fixed opportunities. The fixed opportunities attract people, and excite them about the story. The non-fixed opportunities enable them to explore the story in a variety of locations within and outside the Washington State Parks.

The Washington State Parks are primarily potential nodes – sites with fixed interpretive and wayfinding strategies that can excite visitors about the story and get them started in what is hoped to be a never-ending exploration of that story both physically and educationally. However, because of the features in the park, visitation, location and other factors, different parks can function in different capacities within the Ice Age Floods interpretive network.

Each park in the system functions effectively as a specific part of the network, but not necessarily in a variety of capacities. The way in which it can function determines to a large extent the type and extent of strategies recommended for that park. Some WSPRC units, such as Sun Lakes-Dry Falls, Steamboat Rock, Palouse Falls, Columbia Hills and others, have a wide array of iconic type features related to the Ice Age Floods. Those sites can function as primary story points – places where people can 'see' one or more key chapters of the story and have an in-depth and extensive interpretive experience. Other State Parks, such as Maryhill and Potholes, do not have as wide an array of captivating features associated with the Ice Age Floods, but they do have intriguing features and they do have visitors, so they function as secondary story points. Although not as intriguing as primary story points, secondary story points play a critical role in the network. They reach additional visitors and make them aware of the story, and they create an opportunity for a more intensive experience in a region or area, which increases the attraction power of opportunities such as auto tours. Figure 4 depicts the classification of the State Parks within the flood region as primary or secondary story points.

Menu of Interpretive Strategies

The following strategies are being recommended for use in the interpretive network. Strategies covering multiple sites are described in this section. Strategies specific to parks are described in the media prescription for individual parks.

• *Table Teasers*

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know the nearest park(s) with such opportunities;
- Know where they can obtain more information.

Description and Concept

Table Teasers are intended to grab a visitor's attention and interest so he or she is more likely to stop at one of the sites in the network, or pick up Regional Ice Age Floods Orientation Map/Brochure. Table Teasers can take the form of place mats, laminated cards, or booklets to name a few possibilities. Whatever the form, they should be available at dining tables in restaurants for visitors to browse while waiting for or eating food. Table Teasers focus on presenting interesting tidbits of information associated with the Ice Age Floods. They should also contain information on how to get to the State Park at which the specific feature highlighted by the Table Teaser is located, and contact information, such as directions and phone numbers, on where the visitor can obtain more orientation and/or interpretive information. Given the breadth of the Ice Age Floods network, it is important to develop a set of Table Teasers that includes one for each park. Restaurants can then obtain a set of regional table teasers that relate to the parks in their area.

• *Sensational Treasure Hunt*

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Have personally experienced key features related to the Ice Age Floods using more than one sense.

Description and Concept

This strategy focuses attention on different aspects of the interpretive experience and encourages visitation to all parts of the interpretive network and beyond by asking participants to find various features or engage in various experiences related to the Ice Age Floods throughout the State Parks and surrounding areas. The actual device can be anything easily carried and used as an identification guide and check-off list, such as a small booklet or set of cards with pictures. Whatever is used, it should contain descriptions and images of features to look for and check off. This booklet will help to occupy children and families, and keep them interested and learning. A button or similar reward could be given to children who fill out the entire booklet. This strategy could be

developed in conjunction with other nearby sites with Ice Age Floods interpretive opportunities. The result would be a series of multi-sensory activities, geared to different sites, offered in one product. Another possibility is to couple this with the concept of a “Passport to the Past” that allows kids to stamp their passport at different sites within the network. Children could have an extra incentive to visit a site because the very act of stamping their booklet could be with a specimen or artifact related to the story at that site, such as an iceberg, a chunk of basalt, the tooth (reproduction) of a mammoth or big cat, or similar appropriate item.

We recommend creating a Sensational Treasure Hunt specific to each region rather than to each State Park or to the flood region as a whole. The advantage to a regional guide is that notes can be included to highlight unique sensory experiences that are only found in specific parks in that region, thus encouraging visitation to those parks. The same approach could be used in a statewide booklet, but the document becomes larger and less useful to the visitors to specific regions. The disadvantage of having multiple regional Sensational Treasure Hunts is that much of each publication will be identical in terms of features or sensory experiences. However, those experiences will be found in different parks and highlight different features.

Comments:

- This strategy should be developed with extreme sensitivity to protection of cultural and natural resources.
- This strategy could be developed in conjunction with partners to encourage visitation to Ice Age Floods features not on State Park property.

• ***Event Series***

Location

Events should happen in as many State Parks as possible. Most if not all should offer trips for residents. Some are well-suited because of space and/or facilities to hold larger events and should consider including those.

Key Objectives

The objectives will vary according to the event, but every event should result in achieving the following objectives:

- Participants will be aware of the Ice Age Floods interpretive opportunities in the surrounding area and statewide;
- Be aware that States Parks is providing the opportunities.

Description and Concept

The purpose of this strategy is to make residents and/or visitors aware of the Ice Age Floods story and the interpretive network in hopes they will choose to participate in some of those opportunities. Consequently, events should be held on-site at various parks in the flood region. Events could include on-site talks, a speaker series, demonstrations, festivals and field trips. One event could be a series of “What’s in Your Backyard” field trips. The trips are day or half-day excursions designed specifically for nearby residents with a focus on how to read the landscape for clues as to the impact of the Ice Age Floods in that area.

- *Familiarization Tours*

Key Objectives

After interacting with this opportunity, participants will:

- Be aware of the Ice Age Floods interpretive opportunities in the State Parks and in the surrounding area;
- Know where to direct people for additional information on these opportunities.

Description and Concept

These tours are for anyone associated with tourism and/or trying to market the cultural and natural history of the area. The tours focus on giving the participants a clear idea of what the Ice Age Floods interpretive network has to offer and what a visitor can expect on a visit. The tours could include sites outside the State Parks that are associated with the Ice Age Floods.

- *Teachers' packet for field trips*

Note: School groups are an important audience to achieve more integration into the surrounding communities. Preparing a teacher's packet will help facilitate use by this audience, but the key to use by school groups is infrastructure required to support a field trip, which includes bus turnaround and parking space adequate for large vehicles, group gathering space, multiple restroom facilities and covered areas for eating and perhaps for presentations if the weather is bad.

Key Objectives

After interacting with this opportunity, educators will:

- Be able to plan an itinerary for a trip to State Parks and associated sites within the region;
- Be interested enough to plan and implement a field trip;
- Know where to get more information;
- Have student activities for before, during and after the field trip;
- Have originals of the Regional Ice Age Floods Orientation Map/Brochure and Sensational Treasure Hunt for copying;
- Have contact information for State Parks in the region;
- Have a clear list/description of key stewardship behaviors expected of visitors to the area.

Description and Concept

This packet should contain all the information necessary for an educator to easily plan and conduct a field trip. Such information includes:

- A map of the region and possibly of the State Parks to visit;
- A description of the educational opportunities available;
- All the necessary information for scheduling visits and arranging for special programs;
- A suggested itinerary, including surrounding sites, with time required for travel and visit;
- The Sensational Treasure Hunt to be copied for each student;
- A suggestion of information to be presented prior to a trip;
- What to take and what to wear;
- Written projects that could be copied and used in the classroom prior to the trip, and others that could be used during the trip, and a finally, a set of projects that could be used as a follow-up.

The information and curriculum for school groups, and therefore for this strategy, would be developed based on the curriculum used in the local school system.

Comment

The Teacher's Packet could be made available in a printed format and on a CD, DVD and VHS for flexibility.

- *Regional Explorer's Guides to the Ice Age Floods*

Note: Much of the information for the Explorer's Guides is already available, but it is spread through many publications. To be effective in providing a seamless and richer experience, and to facilitate exploration and discovery, the information needs to be in one publication.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know all the basic themes;
- Feel comfortable finding their way around the region and accessing State Parks and other sites with interpretive opportunities and/or Ice Age Floods features;
- Be inspired to plan multiple trips to sites within the flood region.

Description and Concept

Organization of this book is critical to its usefulness. It has to be user-friendly, which means that it has to be organized so a person can find the information he or she wants very quickly. It also has to be traveler-friendly, which means good orientation and wayfinding for short trips and auto tours within the region so it is easy to plan and execute a trip. The exact area for each regional guide would have to be determined, but we currently envision one for Spokane-Cheney Region, the Moses Lake-Wenatchee Region, the Tri-Cities Region, and the Lower Columbia River Region. Although each guide would focus on a region, an overview of opportunities in the other regions should be included. Washington State Parks would be highlighted as places to find additional information, places from which to start tours, and key story points within the tours. Information should include the following:

- A map with stops and routes highlighted along with any restrictions on use of a site or of a site or an area;
- Interpretive information associated with every stop;
- Time required for every tour;
- Suggested itinerary for different routes;
- Potential hazards;
- What to take along;
- Associated opportunities that might be of interest;
- Contact information.

Note: As with all other strategies, it is important both to develop a consistent look and quality to the strategies within the interpretive network and to develop partnerships and support. When similar strategies exist, such as the auto tour in the Wenatchee Area, the WSPRC should work with the local group or persons responsible for the existing strategy to develop the next edition of the strategy, which should reflect the interpretive plan.

- *WSPRC Discovery Guide to the Ice Age Floods*

Note: This is essentially all the Regional Explorer's Guides to the Ice Age Floods combined into one publication.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know all the basic themes;
- Feel comfortable finding their way around any region and accessing State Parks and other sites with interpretive opportunities and/or Ice Age Floods features;
- Be aware of all the Ice Age Floods interpretive opportunities in each region;
- Be inspired to visit more than one of the regions to learn about the floods.

Description and Concept

This publication would be divided into regions corresponding to the regional guides. Washington State Parks would be highlighted as places to find additional information, places from which to start tours and key story points within the tours. Information should include the same as what is in the regional guides. However, it should also include itineraries for multi-regional trips.

- *Thematic Overview Panel*

Location

Locations are noted in recommendations for specific parks.

Key Objectives

This panel focuses on achieving the general objectives associated with Ice Age Floods interpretive opportunities identified in the introduction.

Description and Concept

It is important to remember that the thematic overview panel must be designed so it works in a variety of locations. Therefore, it is specific to the Ice Age Floods story, but generic in terms of a specific location. It is also important to remember that this strategy will be duplicated many times. Although multiple copies of the same panel does reduce costs associated with design, the fewer panels necessary to provide an overview the better because of the significant increase in overall cost for each panel that is added. With that in mind, the ideal is to provide a complete overview on a single panel. However, that may prove to be impractical if the panel becomes too busy. The following is a design concept for the overview. We suggest discussing this with the designer to determine if it can be developed on a single panel or if multiple panels are necessary.

One possible design concept is to use a series of visuals depicting different stages of a flood event, each from a bird's-eye perspective of the entire flood region affected by the flood waters. The first visual would depict glacial Lake Missoula, highlighting the role of the ice lobes in damming the river. The second visual would be of the area within the first 48 hours after the dam broke – in other words, with the water flowing over the landscape and reaching the Pacific, but also pooling in temporary lakes such as Glacial Lake Lewis. The role and impact of constrictions, such as Wallula Gap and the Columbia Gorge, would be highlighted. The final visual would be of the area after the flood waters had passed, with key features sculpted by the floods highlighted, such as Dry Falls, Grand Coulee, Palouse Falls, Drumheller Channels, the floodplains where Vancouver

and Portland are now located, and the channeled scablands. Supporting text would focus on the role of the floods in causing significant impact to the physical landscape, and resulting impact on all biotic components, with emphasis on humans. The latter could be a sidebar.

- *Ice Age Floods Height Finders*

Location

Specific locations are noted for each park, but in general, the height finders are mounted on or adjacent to the panel containing the thematic overview.

Key Objectives

After interacting with this opportunity, visitors will:

- Know that the floods were enormous events, covering most of the surrounding area, including the site where they are standing, under hundreds of feet of water;
- Know specifically the height of the floodwaters above the point at which they are standing;
- Have some sense of the velocity of the water passing that point and a sense of the amount and size of material being transported and where it might have originated.

Description and Concept

These are simple tubes or pipes, set in stone or some other medium so they cannot be moved. One should be mounted at a height for adults and one at a height for children. The tube would focus on a point in the surrounding landscape that matches the maximum height of the flood waters. A supporting label should identify the height of the flood waters at the point the visitor is standing along with maximum velocity, amount of material being carried, the maximum size of the material, and possibly notes on origination of the material. It would also note that the water carried icebergs.

Note: In those cases where the floods completely inundated the surrounding landscape, the height finder would focus on the highest point and note how far underwater that point was during the largest flood.

- *Ice Age Floods in Washington Poster*

Key Objectives

After interacting with this opportunity, visitors will:

- Know the floods had significant impact on landforms in Washington;
- Know that changes in the physical landscape significantly affected human activity to this day;
- Know that the floods were enormous and extensive.

Description and Concept

This poster uses a backdrop of a stylized aerial view of the flood region covered by water to pull out photos or other graphic elements depicting key sites and features associated with the event. Each would have a short text block describing the significance of the site or feature. Combined, the photos and text blocks would tell an overview story of the Ice Age Floods. This poster could be sold or given away.

- ***Flood Features Identification Card***

Key Objectives

After interacting with this opportunity, visitors will:

- Know the floods had significant impact on landforms in Washington;
- Know that the floodwaters deposited erratics;
- Know that basalt flows played a key role in the formation of coulees and other key features sculpted by the Ice Age Floods;
- Be able to identify typical features associated with the Ice Age Floods.

Description and Concept

This is a laminated card, similar to those used for flowers, birds, tropical fish and other wildlife, that allows a person to identify typical types of features associated with the floods and the basalt flows that preceded the floods. Such features as columnar basalt, potholes, coulees, erratics, ice-rafted erratics, bergmounds and other such features could be included. Ideally it would be a companion to the Regional Ice Age Floods Explorer's Guides that contain additional information about such features and where they can be seen.

- ***GPS Auto Tours***

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know all the basic themes;
- Be inspired to use the GPS Auto Tour to explore other parts of the flood region.

Description and Concept

A GPS can be used to help with wayfinding, but it can also be used in the interpretive network. If a voice can tell you to turn left at the next corner after you tell it where you want to go, it should be able to tell you that a granite erratic is coming up on your left and then tell you about the origin of that erratic. Adapting this technology for this type of general use may be in the future. However, this network will take years to develop, so technology that might be available in the future should be taken into consideration, especially technology that may become a common tool for dispensing information to travelers.

- ***Regional Auto Tours with CDs***

Key Objectives

Specific objectives will depend on the specific tour, but in general, In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know all the basic themes;
- Be aware that auto tours with CDs are available for other regions;
- Be inspired to take another Ice Age Floods auto tour using a CD.

Description and Concept

These are specific auto tours on roads within the flood region. Although the Regional Ice Age Floods Explorer's Guides will contain auto tour routes and information, the information in this strategy is delivered via compact disc so the participant can listen while driving. The key to this type of tour is to focus on interpreting the viewshed available out the front window rather than expecting people to continually stop and view specific features, as is the case with interpretive trails. Some stops would be encouraged, especially at State Parks.

Given that many possibilities exist for loop tours and alternative routes, and that people can be traveling the same highway in different directions, CDs are more problematic than printed materials in terms of versatility. Consequently, we recommend developing a few key auto tours with CDs to determine effectiveness prior to making any decision for developing a large number of such tours. We suggest the following auto tours be developed initially:

- Loop tour from Tri-Cities to Palouse Falls, Lyons Ferry and back.
- Tour from Moses Lake to Crown Point State Heritage Area.
- Loop Tour from Wenatchee, up the Columbia, onto the Waterville Plateau and back down Moses Coulee.
- Loop Tour encompassing Moses Lake, Potholes Reservoir, Lind Coulee, Frenchman Coulee, Ginkgo Petrified Forest, Frenchman Hills. This tour would likely start at Ginkgo.
- Tour along Interstate 90 from Wenatchee to Spokane (and perhaps the reverse direction also).

• *Presenter's Kit*

Key Objective

The primary objective is to facilitate development and presentation of interpretive programs within the State Parks, although it can be used in other locations as well.

Description and Concept

This kit or trunk, depending on how many items it holds, contains a variety of strategies, objects, demonstration props and instructions, visuals and specimens for use in giving talks in a park and other locations, such as schools, service clubs and community events. It should also include the Personal Interpretation Manual for the Ice Age Floods. Possible items include the following:

- A small erratic;
- A small topographic model of the northern area of the Ice Age Flood region. The model would have the capacity to have water poured over it so viewers could see the route of the floods. It would also be possible to plug different routes to simulate what happened when ice lobes blocked the ancestral route. The Grand Coulee could be filled with material (such as sand) that could be washed out when water was diverted to that route.
- Visuals of typical Ice Age Floods features;
- Personal Interpretation Manual for the Ice Age Floods.

Note: As different presenters develop different demonstrations, the kit can be updated with the props necessary for that demonstration.

• *Personal Interpretation Manual for the Ice Age Floods*

Key Objective

The primary objective is to facilitate development and presentation of interpretive programs with consistent information within the State Parks.

Description and Concept

The manual would be a comprehensive site-specific series of themed scripts and activities for presenting live interpretive programs at each State Park in the Ice Age Floods region. Designed for use in a 3-ring binder format, the scripts could be easily updated. Interpreters could reference the manual to fully develop the Ice Age Floods story at their site and avoid duplication of programs at other parks.

- *Guided Tours*

Key Objectives

Specific objectives will depend on the location and route. At a minimum, guided tours should achieve the general objectives identified in the introduction.

Description and Concept

These are guided tours, led by specialists, in different areas of the flood region. They can be on foot, bicycle, horse, van or a combination of the above. They could even be by air. This strategy may be best handled by a concessionaire, but could be handled by the State Parks at key areas, specifically out of the Environmental Learning Center at Sun Lakes State Park.

Park-Specific Media Prescription and Priorities

Note: Locations that are well-suited to particular types of guided tours are noted in the specific media prescription.

Introduction

This contract focused on recommendations for interpreting the Ice Age Floods so the following site recommendations are focused primarily on interpreting that event. The recommendations include suggestions on how to integrate Ice Age Floods information into existing interpretive opportunities, such as interpretive trails, trail guides and programs. It also identifies new interpretive strategies that could encompass some Ice Age Floods interpretation. However, since the complete interpretive picture at any park is not addressed, these recommendations must be considered within the context of other goals and objectives for each park. A matrix containing a summary of the recommendations of types of strategies for each park can be found in Appendix D.

Information Included:

The following section contains the recommendations for each site in this study. The sites have been organized alphabetically by region to facilitate use by park staff. The following information has been included for each site:

Overview

This section is a brief paragraph noting key aspects of the site in relation to interpreting the Ice Age Floods story.

Status

This section identifies the site as a primary or secondary story point based on visible features, and primary or secondary starting point based on location and visitation.

Recommended Changes to Layout and Infrastructure

This section focuses on changes in layout and removal/addition of structures. For some parks there will be no recommendations; for parks like Palouse Falls, there may be several recommended changes.

Recommended Ice Age Floods Strategies

This section includes site-specific interpretive and wayfinding strategies. The information on each will include a description and location.

Additional Interpretive Opportunities

This section is a listing and brief description of interpretive opportunities that could include some information on the Ice Age Floods but are not dedicated to that story. For example, several parks could benefit from an interpretive trail interpreting several events and/or features, including the Ice Age Floods. In such cases, an interpretive trail dedicated to the Ice Age Floods may not be appropriate and neither would a single sign in a location along such a route to interpret the event.

Southwest Region

Beacon Rock State Park

Overview

The Columbia Gorge is highly significant in terms of the Ice Age Floods. The Gorge was a bottleneck for the flood waters, causing them to back up and form a temporary lake that stretched upriver to Wallula Gap. Upon reaching the west side of the Gorge, the floods slowed down and dropped bedload, which is what the cities of Portland, Troutdale, Gresham and further east, are built on. On the Washington side, a similar 11-mile long gravel bar formed downstream of Prune Hill. Its west end is what the Port of Vancouver is built on. In the process of passing through the narrow river canyon, the flood waters tore away at the Columbia River columnar basalt, helping to create the cliffs faced with columnar basalt, the hanging valleys and waterfalls that dominate the Gorge today. Beacon Rock itself is a volcanic plug that was probably exposed by flood waters passing around and over the top of this feature.

Status

Beacon Rock is a primary story point and primary starting point.

Recommended Changes to Layout and Infrastructure

None recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel - Highway Rest Area

Location

In the restroom area at the east end of the park along the highway. The site is important because it is likely the most visited site in the park. Consequently, we want to use the opportunity to entice people to other interpretive opportunities, especially those in the new Day Use Area.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape Beacon Rock;
- Know that additional Ice Age Floods interpretive opportunities are located in the Day Use Area.

Description and Concept

This is a site-specific overview panel focusing on the geomorphologic formation of the area using Beacon Rock as a focal point. One possible design concept is to use a series of visuals focusing specifically on key geomorphologic events that shaped Beacon Rock into what we see today. The visuals could include one focusing on the volcanic activity that formed the volcanic plug, the impact of the Columbia River basalt flows, and the impact of the Ice Age Floods on this landscape. A sidebar would provide a brief overview of the Ice Age Floods for context. Also, the panel would include a note to the visitor, prominently displayed, that additional Ice Age Floods interpretive opportunities could be found in the Day Use Area and the Visitor Center.

Note: Complete orientation and interpretive planning for individual parks is outside the scope of this project. However, the effectiveness of interpretive opportunities in the Day Use Area will be significantly enhanced if visitation to that area increases. Consequently, we suggest that this area include a Site Orientation Panel highlighting the additional interpretive and recreational opportunities in Beacon Rock, with emphasis on the Day Use Area. One possible design concept is to use a bird's-eye perspective of the park as a backdrop for enlarged photos of people enjoying different recreational and interpretive opportunities within the park. Lines would connect the photo to the site within the park where a visitor can enjoy such op-

opportunities. Ideally, a brochure holder could dispense a map/brochure of the park to help people find their way around.

Distribution Center

Description and Concept

The existing visitor center should have a small section containing selected literature, videos, DVDs, auto tour guides and any other such interpretive strategies about the Ice Age Floods. The area should be demarcated in some way to quickly communicate the topic covered by the items for sale. Because of limited space, it is important to give priority to those guides and auto tours that encompass the immediate area. Note also that it is critical that the person who staffs the visitor center be aware of additional interpretive opportunities in the area that relate to the Ice Age Floods.

Interpretive Panel Cluster

Location

At or near the trailhead of the existing interpretive trail in the Day Use Area.

Key Objective

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape Beacon Rock.

Description and Concept

We envision the following panels for this cluster:

Panel 1:

This is the Ice Age Floods Thematic Overview Panel to provide context for the site-specific story. Design concept is included in the general strategies section. The Ice Age Floods Height Finder would be associated with this panel.

Panel 2:

This is the Regional Ice Age Floods Orientation Panel. Design concept is included in the general strategies section.

Panel 3:

This is a site-specific panel focusing on the impacts to biotic components of the ecosystem, including humans, due to the floods. One possible design concept is to use the scene in front of the viewer as a backdrop to highlight vegetation and associated species of wildlife that were impacted by the floods in some way. Supporting text would highlight those linkages. Other visuals could include human activities that were affected by the event.

Interpretive Panels - Existing Interpretive Trail

Location

The park has a Day Use Area down by the river with an existing fully accessible interpretive trail. We suggest adding two panels to the signage along the trail. Specific locations are noted for individual panels.

Panel 1: Ice Age Floods

Add a panel along the trail at a point when the participant is oriented toward the basalt cliffs across the river. The interpretation would focus on the erosive power and impact of the floods. One possible design concept is to use the same approach as used on the existing panel that interprets the Ice Age Floods - use an image of the area covered by a transparent flood as a backdrop for additional visuals. In this case, the visuals would include a schematic depicting how the flood waters eroded the cliffs. Due to the park's location within the Columbia Gorge National Scenic Area, it may be necessary to use vegetative screening to block the view of the panel from the top of Beacon Rock.

Panel 2: Beacon Rock

Add a panel along the trail oriented toward Beacon Rock (where it is clearly visible) that focuses on the formation of the plug as we see it today, including the role of the Ice Age Floods in that process. This is similar to the panel at the Rest Area, but it should use a visual of the scene in front of the panel as a backdrop for depicting the geomorphologic events that shaped the area. As noted, it may be necessary to use vegetative screening to block the view of the panel.

Comment

Consider re-orienting or re-locating the existing panel on the Ice Age Floods so Beacon Rock is clearly visible in the visual field in front of the panel. It is a good panel, but the impact can be increased if people are looking at the rock. If the Scenic Area restrictions are the issue, plant a low vegetative screen in front of the panel so people cannot see the panel from the top of the rock, but so people can see over the vegetation.

***Coming From the Depths
Interpretive Mini-trail******Key Objectives***

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Have a sense of the magnitude of the floods;
- Know that the Ice Age Floods were one of several major forces to shape Beacon Rock and the Columbia River Gorge.

Description and Concept

This is a combination of a series of labels located at points along the stairway that accesses the top of Beacon Rock where people have room to stop and get out of the pathway, and two interpretive panels at the top. Instead of telling people how high they are the labels tell them how many feet underwater they still are and what the person would see going by them at that point if he or she could see underwater – boulders bouncing along the bottom, gravel higher up, finer material even higher, and the bases of icebergs at whatever height that would have occurred. At the top are two interpretive panels, one facing up-river and one facing downriver, that focus on the magnitude of the floods and the impact on the surrounding landscape. The following are possible design concepts for the panels.

Panel 1: Upstream View

One possible design is to begin with an image depicting what the floods would have looked like as they approached Beacon Rock, but with the water transparent so images of the erosive action can be included, such as ripping away columnar basalt and scouring the bottom of the flood channel. Another image, located under the first, would depict what the area looks like now,

with features sculpted by the floodwaters and the high water mark highlighted. Supporting text would provide an overview of the flood story, with emphasis on the gorge constricting the flow of water and causing a temporary lake to form, and on the erosive action of the flood waters.

Panel 2: Downstream View

The panel would focus on the role of the flood waters in forming the landscape being viewed, and in forming the floodplain on which Portland and Vancouver are built. One possible design concept is to again use two images, one on top of the other, representing then and now. The top image would depict the floodwaters moving through the gorge and out the other side, again transparent so images of the impacts of the floods can be depicted. Impacts would include eroding the columnar basalt in the gorge and dropping bedload as the water slowed after leaving the gorge. The bottom image depicts what the area looks like now, with features sculpted or formed by floodwaters highlighted. Supporting text would focus on the different types of impacts by the floods – erosional and depositional, with emphasis on the role of the floods in forming the landscape on which Portland and Vancouver are built.

Interpretive Talks***Key Objectives***

Specific objectives would depend on the talk, but all talks should achieve the general objectives identified in the introduction.

In addition, after participating in a talk at Beacon Rock, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape Beacon Rock and the Columbia River Gorge;
- Know that nearby Columbia Hills State Park is a good place to see Ice Age Floods features.

Description and Concept

The new Day Use Area of the park is an excellent location for giving an interpretive talk on the Ice Age Floods because the view contains a variety of features that can be used to tell part of the story. If this were adopted as a regular interpretive opportunity, consideration should be given to developing a set of benches where people can sit while

attending a talk. Ideally, the seating area would be located so the Columbia River and the basalt cliffs across the river are both visible. However, care must be taken so it is not visible from Beacon Rock or other key sites in the area.

Priority for Implementation

Phase 1

- Develop the interpretive panel at the highway rest area. This area has the highest visitation, thus a lot of people can be reached for the cost of putting in the panel.
- Stock the Distribution Center.
- Develop personal interpretive strategies. This is generally the quickest and least expensive interpretive strategy if the park already has park staff dedicated in part to providing interpretation. It is also one of the most effective.

Phase 2

- Develop the interpretive panel cluster and additional panels for the existing interpretive trail.

Phase 3

- Develop the Interpretive Mini-Trail. This is a lower priority because it reaches fewer people than the other strategies.

Southwest Region

Cape Disappointment State Park

Overview

This park is adjacent to the point where the flood waters emptied into the Pacific Ocean, carrying with them material it scoured from the landscape. Some of that material has ended up as far away as offshore northern California. The undersea area that received the eroded material from the Floods is larger than the land area affected by Glacial Lake Missoula and the Floods.

The area lacks the sculpted features such as basalt cliffs scabland features and coulees that are prominent in other parts of the network and effective in capturing, holding visitor attention and in telling the story. It is also a site heavily geared toward cultural history, with a current emphasis on Lewis & Clark. As with Columbia Hills, we want to exercise caution in providing too many stories in the same place. However, the viewshed does contain two significant features associated with the event – the Columbia River and the Pacific Ocean, and specifically, the confluence of the two. The story of the transport of materials to the ocean, subsequent deposition and impact of the deposition should be the focal point, and the site for telling that story should be one with a clear view of the confluence.

Status

Cape Disappointment is a secondary story site and secondary orientation site in the network.

Recommended Changes to Layout and Infrastructure

None recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Interpretive Strategies

Interior Exhibit

Location

This would be located in the upper level of the interpretive center against the window wall that looks out at the confluence of the Columbia and the Pacific. Such an exhibit is appropriate in that location because the exhibits in the room cover a wide range of topics, including lighthouses, shipwrecks, natural history and native peoples. Also, the exhibit could be designed so its appearance is consistent with the current exhibit on the changing coastline so it would fit in within the look of the exhibits in that room.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the Ice Age Floods had significant impact on the ocean floor;
- Know that the coastline was extended miles to the west during the Ice Age;
- Know that all the flood waters with all the material they carried emptied into the Pacific from the Columbia.

Description and Concept

One exhibit currently against the window wall interprets how the coastline has changed with the building of the jetties. We suggest a similar exhibit but contrasting the coastline as it looks now with how it looked in the time of the Ice Age. In such a contrast, the overlay would show land stretching out miles to the west. If possible, by pressing a button, the 'flood' event could be seen covering the area as it emptied into the ocean, and then continuing out to cover parts of the ocean floor. Another possibility would be a simple pull-out that could depict the height and extent of flood waters as they moved past this point. Supporting text would highlight the amount of water, amount of sedi-

ment and origin of the material carried by the Ice Age Floods. If room were available, an image depicting both the land and ocean areas impacted by the floods would be effective. Follow-up information, including a thematic overview, would probably have to be delivered in a publication form because of the limitations of space in that room.

Interpretive Panel Cluster

Location

The cluster, with visual access to the confluence, would be located along the walkway currently being constructed at the base of the interpretive center.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods carried a significant amount of sediment;
- Know that the coastline was much further west than now because the ocean level was lower;
- Know that the floods affected a significant area on the floor of the Pacific Ocean;
- Know that the impacts of the sediment affected marine life.

Description and Concept

We are envisioning the following panels for this location:

Panel 1:

This panel focuses on the scene from this point as it might have looked when the flood waters were going through. One possible design concept is to use the scene, but with the land extending to the west to depict how it might have looked during the ice ages as a backdrop with floodwaters superimposed, similar to the interpretive panel in the new Day Use Area at Beacon Rock. Supporting text would focus on the height of the flood waters at this point and the amount and type of material carried by the waters into the ocean. A brief overview of the Ice Age Floods story would be presented in a sidebar. Ideally, the panel will include a brochure holder for distributing the Regional Ice Age Floods Orientation Map/Brochure.

Panel 2:

This panel focuses on the impact of the flood waters on the Pacific Ocean, specifically, the floor of the ocean and its inhabitants. This would include the fact that sediment ended up as far south as offshore northern California. One possible design concept is to use a map of the west coast of the United States and Pacific Ocean indicating the extent of the distribution of material as a backdrop for additional visuals highlighting specific impacts. One visual could be a cross-section showing a turbidity current carrying the sediment with supporting text explaining turbidity currents. Another could be an image of sediment clouding the water and settling on the seafloor. Marine organisms affected by the flood waters would be included. Supporting text would focus on the impact on marine life. A sidebar could focus on how the floods continue to affect marine life today.

Interpretive Talks

Key Objectives

Specific objectives will depend on the talk, but all talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after visitors participate in a talk at Cape Disappointment State Park, they will:

- Know that the floods carried a significant amount of sediment;
- Know that the coastline was much further west than now because the ocean level was lower;
- Know that the floods affected a significant area on the floor of the Pacific Ocean;
- Know that the impacts of the sediment affected marine life.

Description and Concept

Within the array of programs offered in evening programs should be programs on the Ice Age Floods with emphasis on the amount of water and sediment that passed by this location, the origin of that sediment, and the impact of deposition of the sediment on marine life. It should also include the role of icebergs in transporting erratics to the area.

Distribution Center

Description and Concept

The existing visitor center should have a small section containing selected literature, videos, DVDs, auto tour guides and any other such interpretive strategies about the Ice Age Floods. Because of limited space, it is important to give priority to those guides and auto tours that encompass the immediate area. The backdrop for that area of the gift shop should be designed so it stands out from the rest of the retail space because the overwhelming impression upon entering the retail space is that it is all focused on Lewis & Clark and cultural history. Note also that it is critical that the person who staffs the visitor center be aware of additional interpretive opportunities in the area that relate to the Ice Age Floods, and of the interpretive opportunities in State Parks.

Note: If possible, key items, especially guidebooks and tour brochures that encompass the Columbia Gorge, should be available in the park office store also.

Bus Driver Training

Description and Concept

Cape Disappointment operates an internal 18-passenger park shuttle in the summer season, with stops at interpretive sites, day-use areas and the campground. The drivers probably already receive some training so they can answer visitor questions, and may already have information on the Ice Age Floods. One key in this park, which does not have breathtaking visuals associated with the event (such as Grand Coulee) is to make people aware of the floods so they then attend to the interpretation that is available and hopefully purchase a guidebook. In other words, we want to start people on their Ice Age Floods experience. Consequently, in addition to telling people about Lewis and Clark and other cultural stories, the bus drivers should introduce the story with some catchy “didjacks” and then direct visitors to sources of additional information within the park.

Comment

As noted in the menu of interpretive opportunities, all parks should strive to include events in the opportunities for visitors, especially ‘What’s in Your Backyard’ tours for local residents. Cape Disappointment is a good park for events because of the space, but also because of its position relative to the pathway of the floods. Because it is at the point where flood waters emptied into the Pacific, it can host an ‘End of the Trail’ event.

Priority for Implementation

Phase 1

- Develop the interpretive panels.
- Stock the Distribution Center with relevant materials.
- Implement the Bus Driver Training associated with the Ice Age Floods.

Phase 2

- Develop the Interior Exhibit.

Eastern Region

Bridgeport State Park

Overview

This park is known for its “haystacks,” which are clumps of basalt carried to this point by the ice sheet. This is an excellent place to focus on the interrelationship of the floods and the Cordilleran Ice Sheet, specifically on the role of the Okanogan Lobe from the ice sheet in influencing the pathways of the Ice Age Floods. Given its location, it is also a good place to focus on downstream features associated with both events.

Status

Bridgeport is a secondary story point and a secondary starting point.

Recommended Changes to Layout and Infrastructure

To increase awareness of the interpretive panels by campers who might not typically walk up to the interpretive panel cluster, we suggest creating a connecting spur of trail from the upper parking area to the campground so campers could walk a loop trail. This trail could become an interpretive trail focusing on the ecology and geomorphology of the landscape.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel Cluster

Location

These panels would be located in an area where a large erratic is clearly visible. There are several possible locations, including sites within the campground and adjacent to the boat ramp access road. We recommend a site at the head of the stairs that connect the upper parking area to the Day Use Area (see Figure 5). That area has numerous large erratics and a clear view of the river (Rufus Woods Lake).

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Understand the role of the ice sheets in determining the flow of flood waters;
- Know that the ice sheets also dropped material, including the large boulders in the area;
- Know that the area experienced being covered by floods and being covered by the ice sheet.

Description and Concept

We are envisioning the following panel for this location:

Panel 1:

This site-specific panel, oriented toward a large erratic at the top of the access pathway to the Day Use Area, would use the basalt rock in the visual field to focus on the ice sheet that covered the area during the last Ice Age and how it affected the landscape. The panel would include a focus on where the rocks came from and how they came to be located in the park and surrounding area. One possible design concept is to use graphic depictions of different snapshots in time in the ‘life’ of the erratic, beginning with being torn out by the advancing ice sheet. Other images would show it being carried to this spot, and being left when the ice sheet melted. A sidebar could also focus on the height of the floods and their impact in terms of ripping out hillsides to form cliffs.

Note: Although this panel is not about the Ice Age Floods, it is included because people will focus first on the erratics because of their size and abundance in the surrounding landscape. We can therefore use that focus to shift attention to the ice sheet, and from there, to the role of the ice sheet on the Ice Age Floods, which is the subject of the fourth panel.

Panel 2:

This site-specific panel, oriented toward the Columbia (Rufus Woods Lake), would focus on the interrelationship between the ice sheet and the Ice Age Floods. One possible design concept is to use a series of maps showing the pathway of the flood waters – one before the ice lobe blocked the ancestral route of the Columbia, and one when it was blocking the route. The first should be used as a backdrop to highlight impacts to the ancestral route in the area and the second should be used as a backdrop to focus on the re-routing of the flood waters and subsequent formation of Moses Coulee and Grand Coulee. A sidebar would provide a brief overview of the Ice Age Floods story to set the context for the information on the panel. Ideally, the panel will include a brochure holder for distributing the Regional Ice Age Floods Orientation Map/Brochure. The Ice Age Floods Height Finder, described in the introduction to interpretive strategies, should also be located on or near this panel.

Interpretive Talks**Key Objectives**

Specific objectives will depend on the talk, but all talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after visitors participate in a talk at Bridgeport State Park, they will:

- Know that the Ice Age Floods were affected by the ice sheet;
- Know that the large boulders that dot the landscape are erratics brought by the ice sheet.

Description and Concept

Within the array of evening programs offered should be ones on the Ice Age Floods with emphasis on how the ice sheet influenced the pathways of the floods, and also with emphasis on how the ice sheet affected the topography and subsequent flora, fauna and human use of the area. Ideally the Ice Age Floods map/brochure would be distributed at the end of the program.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Ice Sheet Height Finders: These are similar to the Ice Age Floods height finders, but instead of focusing on a point representing the height of the floodwaters, it would focus on the height of the ice sheet or would focus on the highest point in the nearby surrounding landscape and note how far beneath the surface of the ice the point lay. A simple text panel should provide the height above the point where the person is standing and just ask the person to imagine what it would have been like.

Interpretive Trail: Given the prominence of features related to the ice sheet, we would not recommend an interpretive trail specifically for the Ice Age Floods. However, if a loop trail was constructed, as suggested in the recommended changes to the infrastructure, it could be developed as an interpretive trail with the ice sheets and Ice Age Flood stories told at stops on the trail.

Priority for Implementation**Phase 1**

- Develop personal interpretive strategies.

Phase 2

- Develop the interpretive panel cluster.

Phase 3

- Develop the interpretive trail.

Eastern Region

Columbia Hills State Park

Overview

Lower elevation parts of the park were eroded by the floods, resulting in the formation of prominent scabland features. The presence of significant gravel bars visible on the south side of the Columbia creates an opportunity to include both depositional and erosional impacts of the floods. The site is significant for many other reasons. First, it is situated on the eastern end of the Columbia Gorge, and therefore it has the potential to function as a portal into the Gorge for travelers going west, and a portal into central and eastern Washington for travelers going east. Finally, it is a site with significant cultural resources (such as pictographs and petroglyphs).

Status

This park is a primary story point and a primary starting point.

Recommended Changes to Layout and Infrastructure

In addition to an increase in the array of interpretive opportunities at Columbia Hills, significant modifications to the layout and infrastructure would increase the attraction and holding power of this site, thus increasing the potential as a destination attraction. The key recommendation is for an interpretive/visitor center. The following site recommendation is based on interpreting the Ice Age Floods, but it should be considered within the context of other goals and objectives for the park. As noted previously, this contract focuses on recommendations for interpreting the Ice Age Floods so we are not addressing the complete interpretive picture at any park, including Columbia Hills. The best location for an interpretive facility based on interpreting the Ice Age Floods may not be the best location for interpreting the Ice Age Floods, cultural history AND natural history. Consequently, it is important to understand the limitations of our work and

put our recommendations within the context of what else is going on or could happen at Columbia Hills State Park.

The preferred location for this facility is in the eastern end of the park, north of the highway on a bench above the highway with a good view of Horsethief Butte and the river (see Figure 6). Note that this area is linked to the trail system for the Dalles Mountain Ranch. An interpretive center is being considered for this area, but the location is adjacent to and at the same level as the highway. We are recommending that the facility be located on the bench, above the highway, if a design can be developed that is compatible with regulations associated with the Columbia Gorge National Scenic Area. If the facility is by the highway, it functions primarily as a visitor center – orienting people to the park and area and providing some interpretation. If it is on the bench above the highway, it can function more effectively as an interpretive center because of the views from that location.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel Cluster – Lower Overlook

Location

At the edge of the lower parking area in the same area as the panels interpreting the Lewis & Clark story.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that stories of large floods can also be found in Native American lore.

Description and Concept

We recommend integrating the story of the Ice Age Floods, the pre-contact cultural history and the post-contact cultural history at this interpretive panel cluster. The following panels are recommended:

Panel 1:

This is the Ice Age Floods Thematic Overview panel to provide context for the site-specific story. Design concept is included in the general strategies section. The Ice Age Floods Height Finder would be associated with this panel.

Panel 2:

This is the Regional Ice Age Floods Orientation Panel. Design concept is included in the general strategies section.

Panel 3:

This panel focuses on the stories of the large floods that exist in Native American lore. We strongly suggest that the story be obtained from the Native Americans, and perhaps illustrated based on that story.

Interpretive Panel Cluster – Upper Overlook

Location

This cluster of four panels will be located in an overlook on a bench above the highway at the east end of the park, in the area recommended for siting an interpretive center.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods were a key force in forming the scablands on which Columbia Hills is located;
- Know that the floods sculpted many features along the gorge, including the cliffs of columnar basalt and the channel;
- Know that the floods also impacted the area through deposition.

Description and Concept

The following panels are recommended:

Panel 1:

This is the Ice Age Floods Thematic Overview panel to provide context for the site-specific story. Design concept is included in the general strategies section. The Ice Age Floods Height Finder would be associated with this panel.

Panel 2:

This is the Regional Ice Age Floods Orientation Panel. Design concept is included in the general strategies section.

Panel 3:

This panel focuses on how scablands are formed. One possible design concept is to use a series of visuals depicting a cross-section of the flood at Columbia Hills. The visuals would represent different stages of erosion due to the floods with supporting text describing the process. The last visual would depict how the area looked after the flood waters passed by. In other words, it would use an image of the area in front of the panel (which should include Horsethief Butte) to identify different features and characteristics associated with scablands.

Panel 4:

This panel focuses on the impact of the floods on how the area was used by the humans. One possible design concept is to use a representation of the view in front of the panel as a backdrop for enlarged images of human activities affected by the flood waters. Images could include traveling in the channel between Horsethief Butte and the gorge walls by foot in pre-contact times and by highway in current times; Native Americans using the flat benches of the scablands as camp sites; using columnar basalt exposed by the flood waters for pictographs and petroglyphs; and EuroAmericans having difficulty growing crops in areas eroded by floodwaters, and successfully growing crops (such as grapes for wine) in areas with significant deposition, such as areas found just downstream of points of land jutting into the pathway of the floodwaters.

We cannot assume that people will visit both the upper and lower overlook, so these two panels are included at both locations.

Distribution Center

Description and Concept

The existing park office should have a small section containing selected literature, videos, DVDs, auto tour guides and any other such interpretive strategies about the Ice Age Floods. Ideally, the space with such items should be demarcated in some way so

people know the items relate to the Ice Age Floods. Because of limited space, it is important to give priority to those guides and auto tours that encompass the immediate area. Note also that it is critical that the person who staffs the visitor center be aware of additional interpretive opportunities in the area that relate to the Ice Age Floods.

Ice Age Floods Interpretive Trail

Location

This trail will be located on the bench above the highway at the east end of the park in the same area as the upper overlook. Ideally, the system of hiking trails accessing the upper part of the park would begin in the same location.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the lower part of Columbia Hills, including all areas adjacent to the highway, was inundated by the floods waters so all physical and biotic components of that landscape are affected by the event in some way.

Description and Concept

This short (1/4-mile) loop trail would use the features in the viewshed to focus on the variety of impacts from the Ice Age Floods and provide more specific information on the erosional process that formed the Ice Age Flood-related features. Focus would be on both the impacts to the physical landscape and to the biotic components of the environment. Information at the beginning of the trail would include a trail orientation panel and introductory interpretive panel providing an overview of the impacts. The interpretation along the trail could be delivered by signage or by a brochure keyed to features. The following are design concepts for the introductory panels:

Panel 1:

This is a thematic overview of the impact of the floods on life in the area from the time of the floods forward. One possible design concept is to use the scene in front of the panel as a backdrop to highlight impacts on the physical landscape coupled with use of the

new landscape by a biotic component of the ecosystem with emphasis on the connections. For example, the flat scabland bench would be highlighted as a camp site; the thin soils due to scouring by the floods would be connected to vegetation that can tolerate such conditions; and the columnar basalt cliffs would be highlighted as perfect habitat for raptors and other wildlife. Addition of a visual depicting what the area may have looked like, including the plants and wildlife that occupied the area, would be effective in highlighting the impacts of the floods.

Panel 2:

This is a trail orientation panel. One possible design concept is to use a stylized, bird's-eye perspective of the trail as a backdrop for highlighting the stops and the features at those stops. Supporting text would focus on difficulty, length and time required. A brochure holder would dispense the trail brochure.

Ice Age Floods Guided Walks

Location

Guided walks could be offered in several areas, including in the area now used for walks and talks focusing on Native Americans.

Key Objectives

Specific objectives will depend on the route, but all guided walks should achieve the general objectives identified in the introduction. In addition, after participating in a guided walk in Columbia Hills, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area, especially the scabland features;
- Know what scabland features are and how they are formed.

Interpretive Talks

Key Objectives

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Columbia Hills, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area, especially the scabland features;

- Know what scabland features are and how they are formed.

Description and Concept

Within the array of evening programs should be ones focusing on the Ice Age Floods with emphasis on how the floods sculpted the topography of Columbia Hills and the Columbia River Gorge, which in turn affected the biotic components. Ideally the Regional Ice Age Floods Orientation Map/ Brochure would be distributed at the end of the program. These talks could be offered in several places, including locations on the bench where we are recommending a new facility be located. Ideally, benches or some other form of seating could be developed in the areas where talks are presented if possible given the constraints associated with location within the Columbia Gorge National Scenic Area.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Boater's Guide to the Columbia and Snake Rivers:

This would be an orientation and interpretive guide to the Columbia and Snake Rivers for those taking tour boats. It could be prepared in sections so only the section appropriate to this stretch of river would be distributed here, but the entire book could be available for people taking cruises up the river. This would be a good place to hook boat travelers on the Ice Age Floods story because tour boats already stop so people can see 'She Who Watches.'

Interpretive Trail - Horsethief Butte:

If the new parking area is developed so access to the butte is easier and safer, we recommend developing a loop interpretive trail in the flat area between the parking area and the butte if possible given the constraints associated with location within the Columbia Gorge National Scenic Area. The interpretation should provide an overview of all key stories associated with the area and told in the landscape including cultural history and natural history. A site orientation panel should

be located at the new parking area to then direct people to other areas of the park that have additional interpretive opportunities.

Note: We do not recommend developing an interpretive trail until parking is improved.

Guided walks - cultural interpretation:

The story of the floods can and should be worked into the personal interpretive tours of the petroglyphs and pictographs. It can be introduced by noting that history according to the local Native Americans evidently includes a great flood event. The walks can also include a focus on geo-determinism as it relates to how Native American lifestyle was affected by the impacts to the landscape from the floods.

Note: Park rangers and staff already include stories of the Ice Age Floods in tours of the pictographs and when answering other landscape/geology questions. They find that most visitors have only a vague concept of what really happened and often visitors make the assumption that the gorge was created through a slow-steady erosion process.

Note: Although such a trail would be a good addition to the recreation and interpretive opportunities at the park, it may not be possible due to archaeological concerns.

Interpretive Center:

This facility would be located at the east end of the park on the bench above the highway if possible. The interpretive center should have exhibits on the Columbia River basalt flows, formation of the Cascades, and other geomorphologic events related to the visuals in the viewshed. It should also have an exhibit focusing on geo-determinism - how the environment influenced the way people used the area. In the case of the Native Americans, their story should be introduced here, but told in the area of the park that contains the petroglyphs and pictographs. Exhibits on the Ice Age Floods should include the story of the discovery of the event as well as interpretation of the floods themselves. Since many people will be traveling east to west, the impact of the floods on the gorge area should include the impact in the Portland-Vancouver area. For those traveling west to east, the exhibits should highlight what can

be seen from the highway along the gorge, and should make viewers aware of 'The Reach' as a good place to get information on that area regarding the Ice Age Floods.

Priority for Implementation

Phase 1

- Develop personal interpretation, including topic-specific talks as well as integration into current talks. The interpretive walks should be developed as well.
- Develop the panels for the lower overlook.
- Stock the Distribution Center.

Remaining Phases

Since all other recommended interpretive strategies are tied to infrastructure development, what happens next at Columbia Hills depends significantly on the decisions regarding development of the park, which hinges on a wide variety of factors, many of which have little to do with interpretation. Ideally, the next phase would be to develop the bench area at the east end of the park, first with a parking area and interpretive panel cluster, then with an interpretive trail, and then with an interpretive center.

Eastern Region

Columbia Plateau Trail

Overview

This 130-mile trail on a rail-banked railroad right-of-way passes through the heart of scabland formed by the Ice Age Floods. A person using the trail has visual access to many features related to the Ice Age Floods and to the Columbia River basalt flows that set the stage for the impact of the floods. In areas around Cheney, the flood waters slowed, dropping some bedload, including large boulders. In other areas, the flood waters scoured the landscape, leaving behind scabland that now has a thin layer of soil and sparse vegetation. The northern 23-miles of the trail have already been developed and plans exist to develop the entire trail. At present there are 4 trailheads, each with rest-rooms and an informational kiosk. The Trail Master Plan calls for 7 additional trailheads, a connector trail to Sacajawea State Park and a connector trail to Spokane. The plan also calls for a visitor center at Kahlotus. Many significant features, such as Washtucna Coulee, Devil's Canyon and Lake Sacajawea Bar, are along sections of the trail not yet developed. The developed section of the trail is used by walkers, hikers, cyclists and equestrians, although some of the trail is closed to horses.

Status

Columbia Plateau Trail is a primary story point and a secondary starting point.

Recommended Changes to Layout and Infrastructure

None recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Interpretive Strategies

Note: The recommendations only pertain to the developed part of the trail. However, the concept of panels on kiosks at trailheads and guidebooks to sections of the trail between trailheads can be applied to new sections of the trail as they are developed.

Interpretive Panels on Kiosks

Location

On the kiosks at the trailheads.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods were a key force in forming the landscape through which the trail passes;
- Know that a variety of evidence can be found along the trail;
- Be inspired to experience other sections of the trail.

Description and Concept

The following panels are recommended:

Panel 1:

This is the Ice Age Floods Thematic Overview panel to provide context for the site-specific story. Design concept is included in the general strategies section. The Ice Age Floods Height Finder would be associated with this panel.

Panel 2:

This is the Regional Ice Age Floods Orientation Panel. Design concept is included in the general strategies section.

Panel 3:

Since panel 4 will focus on impacts to the physical environment, this panel will focus on impact on the biotic components of the landscape. One possible design concept is to use a bird's-eye perspective of the landscape through which the trail passes with a transparent 'flood' covering it as a backdrop for enlarged images of different features formed by the floods that can be seen along the route, with associated visuals of biotic components that were in turn affected by the changes to the physical environment. Ideally, this panel would be specific to the sections of trail to the north and south of the

trailhead at which it is located.

Panel 4:

Going North – Going South

This panel focuses on the features that can be seen between the trailhead and the next trailheads to the north and south. One possible design concept is to divide the panel in two with one side labeled “Going North?” and the other side labeled “Going South?” The image on each side would be a stylized bird’s-eye perspective of the section of trail as a backdrop for enlarged images of different features that can be seen along the way. Supporting text would identify the feature and explain how it was formed. The panel will also let the visitor know about the user’s guide to the sections of trail.

Guided Ice Age Floods Bicycle Tours

Location

On the developed part of the trail.

Key Objectives

Specific objectives would depend on the actual tour route, but all guided tours should achieve the general objectives identified in the introduction. In addition, after participating in a tour along the Columbia Plateau Trail, visitors will:

- Know that the floods were a key force in forming the landscape through which the trail passes;
- Know that a variety of evidence can be found along the trail;
- Be inspired to experience other sections of the trail.

Description and Concept

These tours provide interpretation focusing on the Ice Age Floods and related geomorphologic events and resulting features, and also on the impact of the floods on flora, fauna and human activity.

Guided Ice Age Floods Equestrian Tours

Location

On the developed part of the trail.

Key Objectives

Specific objectives would depend on the actual tour route, but all guided tours should

achieve the general objectives identified in the introduction. In addition, after participating in a tour along the Columbia Plateau Trail, visitors will:

- Know that the floods were a key force in forming the landscape through which the trail passes;
- Know that a variety of evidence can be found along the trail;
- Be inspired to experience other sections of the trail.

Description and Concept

These tours provide interpretation focusing on the Ice Age Floods and related geomorphologic events and resulting features, and also on the impact of the floods on flora, fauna and human activity.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the trail.

Columbia Plateau Trail Guide booklet to Section 1:

Given that this is a trail, and one that will eventually be of some length, the obvious strategy for interpretation is a guidebook that includes trail logs, orientation information and interpretive information, including stories related to Ice Age Floods features. We do not see a separate guidebook for Ice Age Floods features, but rather a guidebook to the trail with information on the Ice Age Floods integrated with interpretive information on other topics. Since this trail will be developed in sections, we suggest creating the guidebook in sections, and then putting all the sections together when the trail is complete to create the overall guidebook.

Priority for Implementation

Phase 1

- Develop the panels for the kiosks.

Phase 2

- Develop the guidebook for the first trail section.
- Develop the guided tours

Eastern Region

Crown Point Heritage Area

Overview

This park area is at a key point in the path of the floods. The first Missoula Floods flowed by this point, but later floods were forced out of the ancestral route of the Columbia River at this point due to blockage by the ice sheet, resulting in the formation of the Grand Coulee. Later flood waters from Glacial Lake Columbia flowed by this point when the ice sheet retreated. Crown Point is an excellent place to interpret the role of the ice sheets because the dam is blocking the river in about the same place as the ice sheet. In a sense, Grand Coulee Dam is functioning as the ice lobe did, albeit on a much smaller scale, and the resulting body of water (Lake Roosevelt) is a miniature of Glacial Lake Columbia (see Figure 7). The combination provides a good starting point to explaining how and why the Grand Coulee was formed.

Status

Crown Point is a primary story point and a secondary starting point.

Recommended Changes to Layout and Infrastructure

None recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel Cluster

Location

At the edge of the parking area oriented toward Grand Coulee Dam and Lake Roosevelt.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the ice sheets played a major role in determining the course of the flood waters;

- Know that not all floods were Missoula floods.

Description and Concept

The following panels are recommended:

Panel 1:

This is the Ice Age Floods Thematic Overview Panel to provide context for the site-specific story. Design concept is included in the general strategies section. The Ice Age Floods Height Finder would be associated with this panel.

Panel 2:

This is the Regional Ice Age Floods Orientation Panel. Design concept is included in the general strategies section.

Panel 3:

This is a site-specific panel focusing on the blocking of the Columbia by an ice lobe, the formation of Glacial Lake Columbia, and the formation of Grand Coulee when the flood waters from Glacial Lake Missoula were forced to find a route other than the ancestral channel of the Columbia. One possible design concept is to use the existing scene as a backdrop for superimposing a ghost visual of the ice lobe, the flood waters and the water pouring through the Grand Coulee. A sidebar could contain a series of maps depicting the first Missoula Floods, which traveled along the ancestral route of the Columbia River, and the route of the flood waters when the ice lobe blocked the initial route. Another sidebar could focus on Glacial Lake Columbia and the resulting floods. The visual on this sidebar could include a map of the area depicting the extent of Glacial Lake Columbia and the flood region from floods originating from that source superimposed on a map depicting the extent of Glacial Lake Missoula and the area covered by the Missoula Floods.

Interpretive Talks

Key Objectives

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Crown Point, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area, especially the Grand Coulee;
- Know that the ice sheet played a key role in determining the pathway of the flood waters;
- Know that floods that affected the area during the Ice Ages were not just the Missoula Floods.

Description and Concept

Crown Point Heritage Area is a great place to give an interpretive talk about the role of the ice sheets in influencing the route of the floods and in the formation of Grand Coulee because the dam is functioning in a manner similar to the ice lobe, Lake Roosevelt is a miniature of flood waters backing up behind the ice lobe, and the head of the Grand Coulee can be seen from this point. It is also a good point for talking about Glacial Lake Columbia because Lake Roosevelt is a miniature of that feature. Ideally the Regional Ice Age Floods Orientation Map/Brochure would be distributed at the end of the program.

Priority for Implementation

Phase 1

- Develop the interpretive panel cluster.
- Develop the interpretive talks.

Eastern Region

Daroga State Park

Overview

Daroga is a good place to capture people's interest because it is a site of visitor concentration due to the campground and Day Use facilities. The floods had several visible impacts visible from the park or close by, including a large gravel bar on the west side of the river across and just downstream from the park that is likely to be at least partially due to flood waters and current dunes (ripple marks) on a gravel bar north of Daroga, and cliffs along the river canyon. Also, the flood waters, which were 1000 feet deep at this point, were an erosional force that helped shape the river channel and surrounding landscape. Another geomorphology related feature, Earthquake Point, is directly across the river.

Status

Daroga is a secondary story point and a secondary starting point.

Recommended Changes to Layout and Infrastructure

No changes recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel - Walkway

Location

Along the edge of the concrete walkway in the Day Use Area. The area has a good view of the gravel bar across the river as well as the geologic features on the opposite bank.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods were a key force in sculpting the route of the Columbia;
- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods;
- Know that the flood waters were not just from Glacial Lake Missoula.

Description and Concept

The following panel is recommended:

Panel 1:

This site-specific panel, oriented across the river to the gravel bar and canyon walls, focuses on impacts of the floods on the physical landscape, including how the bar was formed by water slowing down and dropping bedload, and how the floods tore away the sides of the canyon to form cliffs. One possible design concept is to show side-by-side visuals of the scene in front of the viewer. The first would be of the canyon with a transparent flood superimposed. Enlarged visuals would highlight the deposition of material on the inside of the river bend, where the water moved slower and the erosive action of the floods on the canyon walls. Differences in erosion due to differences in rock type could be highlighted. The second visual would be the scene now, with the resulting features formed by the flood waters highlighted. A sidebar would provide a brief thematic overview of the Ice Age Floods story for context. Also, the Ice Age Floods Height Finder would be associated with this panel.

Note: The walkway could have additional panels relating to cultural use of the river and also to other geomorphologic events and forces that shaped the area, such as earthquakes, volcanic activity, erosion by the Columbia, and the ice sheets.

Interpretive Talks (Evening Programs)

Key Objectives

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Daroga, visitors will:

- Know that the ice sheet played a key role in determining the pathway of the flood waters;
- Know that floods that affected the area during the Ice Ages were not just the Missoula Floods.

Description and Concept

At this time there is no amphitheater. However, the park has some conveniently sloped grassy hillsides in the camping area that could be used for evening programs. The Regional Ice Age Floods Orientation Map/ Brochure could be distributed at the end of programs that focused on that event.

Other Related Interpretive Strategies:

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Boaters Guide to the Columbia:

This would be a complete orientation and interpretive guide from the perspective of people boating on the Columbia in the stretch of river between Chelan Falls and Rocky Reach Dam, and between Rocky Reach and Rock Island Dams. Interpretation would include features related to the Ice Age Floods as well as those related to other geomorphologic events. It would also interpret flora, fauna and cultural history.

Priority for Implementation

Phase 1

- Develop the evening programs.

Phase 2

- Develop the interpretive panels.

Eastern Region

Fort Okanogan State Park

Overview

This is a significant site in terms of the Euro-American cultural history of the Pacific Northwest in that it was the first permanent settlement in the interior. In terms of the Ice Age Floods, the site was alternately covered by flood waters, covered by ice, and again by flood waters when the ice retreated.

Status

This is a secondary story point and a secondary starting point.

Recommended Changes to Layout and Infrastructure

Develop the access trail to the viewpoint that currently has the interpretive opportunity into an ADA accessible trail.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel Cluster

Location

Ideally these panels would be located at the site of the current panel focusing on the locations of the two forts. This is the only location currently within the footprint and near the building and parking with a good view up and down river.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods were a key force in sculpting the ancestral route of the Columbia;
- Know that the ice sheet played a key role in determining the course of the flood waters;
- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods.

Description and Concept

The following panels are recommended:

Panel 1:

This site-specific panel would focus on the initial Missoula Floods that came down the ancestral path of the Columbia and the role of the ice sheet in general and the Okanogan Lobe specifically in influencing the pathway of later floods. One possible design concept is a series of images representing the different stages of geomorphologic evolution – the first representing how the area may have looked before the floods; the second during the floods (with a ghost image of the floods superimposed so erosional impacts can be highlighted); the third with a ghost image of an ice sheet, again so impacts can be highlighted, and the last of the area as it is seen now, with the features impacted by the floods and ice sheet highlighted. The visual with the ice sheet should have an inset map showing the route of flood waters across the Waterville Plateau and down Grand Coulee with supporting text focusing on the impact of the ice in determining a new course for the flood waters. This panel would have a sidebar containing a brief overview of the Ice Age Floods to set the context for the story at this site.

Note: An additional visual depicting flood waters from Glacial Lake Columbia coming down the river after the ice sheet retreated could be included, but that might be too much information.

Panel 2:

This is a site-specific panel focusing on the impact of the Ice Age Floods and ice sheet on the biotic components of the ecosystem (geo-determinism). One possible design concept is to use a representation of the scene as a backdrop for enlarged visuals of different plants, wildlife and humans using the landscape. Supporting text would focus on how the presence of that species of flora or fauna, or the activity of the humans, was

affected by the floods and/or ice sheets. For example, certain species of plants expanded their range south during the ice ages and remained in remnant populations after the ice sheets retreated. As another example, both the floods and ice sheets deposited material that had impact on what could be grown in the flat areas. Finally, the floods sheared off material to form rocky cliffs, which were good habitat for raptors and some species of rodents.

Note: Ideally, the focus on humans could be presented in such a way as to lead in to the story of the forts. However, it might be better to develop an additional panel that focused primarily on geo-determinism as it related to human activity through the ages. Additional geomorphologic events that shaped the landscape, such as later floods that shaped the flat areas where the forts were located, could be a part of that panel.

Note: The Ice Age Floods Height Finder would be associated with these panels. Also, a brochure holder would distribute the Regional Ice Age Floods Orientation Map/Brochure.

Interior Overview Exhibit

Location

Within the existing interpretive center

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Have a sense of the impact of the floods and other significant geomorphologic events on human activity in this area;
- Know that the floods were a key force in sculpting the route of the Columbia;
- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods;

Description and Concept

The intent of this exhibit is to make people aware of the interrelationship between the Ice Age Floods and ice sheets and the subsequent impact on human activities, and be

a motivator for purchase of non-fixed strategies such as auto tours and publications for exploring and discovering flood features.

The exhibit should include a map of the surrounding area with key features and stops along highway routes identified. Emphasis should be on what people can see relating to the ice sheets and Ice Age Floods on whatever route they are traveling from this site. Ideally, the exhibit would tie to a regional auto tour that includes the site. Since this interpretive center is currently focused on cultural history, the best approach might be to focus primarily on the role of the floods and ice sheet on subsequent human activities and tie it to the use by early EuroAmerican explorers and fur trappers. The introductory part of the exhibit would have to provide an overview of the event and its impact on the landscape with the primary part of the exhibit focusing on the resulting impact on flora, fauna and human activity.

Distribution Center

Description and Concept

The existing gift shop should have a small section containing selected literature, videos, DVDs, auto tour guides and any other such interpretive strategies about the Ice Age Floods. Ideally, the area with items related to the floods should be demarcated in such a way that people immediately recognize the topic associated with the items. Because of limited space, it is important to give priority to those guides and auto tours that encompass the immediate area. Note also that it is critical that the person who staffs the visitor center be aware of additional interpretive opportunities in the area that relate to the Ice Age Floods.

Priority for Implementation

Phase 1

- Develop the interpretive panel cluster.
- Stock the Distribution Center.

Phase 2

- Develop the interior overview exhibit.

Eastern Region

Frenchman Coulee

Note: Frenchman Coulee is not a State Park. The site has a variety of land ownership and management arrangements. Part of area is owned by US Bureau of Reclamation; part by the Washington Department of Fish and Wildlife, including the main climbing area; and part by the Grant County Public Utility District PUD). It is included in this project because of its spectacular features and significant potential to be a key site in an Ice Age Floods interpretive network.

Overview

Frenchman Coulee is perhaps the most spectacular Ice Age Floods feature easily reached from Interstate 90, which creates a significant opportunity in terms of reaching a lot of people with the story. The coulee was formed by floodwaters pouring off the Quincy Basin in the drop to the Columbia River. It contains a wide variety of features associated with the event, including a large coulee with spectacular columnar basalt cliffs, dry cataracts, former plunge pools, depositional material, and huge chunks of columnar basalt from the cliff sides that were either torn away by flood waters or tumbled to the coulee floor after the floods. It is also the route of the former Vantage Highway. The site is used heavily by climbers and as an overflow camping area during events in the Gorge Amphitheater. Problems with vandalism and lack of a personal presence create issues with locating any fixed interpretive strategies at this site.

Status

Frenchman Coulee is a primary story point and potentially a primary starting point. However, at the current level of development, it does not play a role as a starting point due to the difficulty of implementing any fixed interpretive strategies

Recommended Changes to Layout and Infrastructure

None related to specific interpretation of the Ice Age Floods story. It is outside the scope of this project to identify and describe the types of changes required. That task should be undertaken in a Master Planning process. In general, the site needs a personal presence, possibly on a 24-hour basis, which would require housing and an office. If vandalism were controlled, interpretive trails, overlooks and possibly an interpretive center would be appropriate for the site.

Recommended Ice Age Floods Interpretive Strategies

Explorer's Guide to Frenchman Coulee and Surrounding Ice Age Floods Sites

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that Frenchman Coulee was sculpted by the Ice Age Floods;
- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods.

Description and Concept

Organization of this book is critical to its usefulness. It has to be user-friendly, which means that it has to be organized so a person can find the information he or she wants very quickly. It also has to be traveler-friendly, which means good orientation and way-finding from starting points such as Ginkgo so it is easy to plan and execute a trip. Information should include the following:

- A map of the Coulee with stops highlighted;
- Interpretive information associated with every stop;
- Time required for visiting the site;
- Suggested itinerary;
- Potential hazards;
- What to take along;

- Associated opportunities that might be of interest;
- Contact information.

The guide should include Ginkgo Petrified Forest and Potholes State Parks, the route along Frenchman Hills to Potholes, Drumheller Channels, and the route from Frenchman Coulee to Wenatchee at a minimum.

Interpretive Talks/Guided Tours/Guided Walks

Key Objectives

Specific objectives will depend on the talk, tour and location, but all personal interpretive strategies on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in such an opportunity at Frenchman Coulee, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area, especially Frenchman Coulee;
- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods;
- Know that the floods affected and continue to affect human activities;
- Be inspired to visit Ginkgo and Dry Falls.

Description and Concept

Frenchman Coulee is a great place to give an interpretive talk about the impact of the floods in sculpting new features, and the effect of those impacts on human activities because of the size and spectacular nature of the features and because of the use of the coulee as a highway route and use of the features by climbers and campers.

Note: Both these strategies would be effective in raising awareness as to the spectacular nature of the site and perhaps increasing public support for increasing the level of management and the number and type of interpretive and recreational opportunities.

Priority for Implementation

Phase 1

- Begin exploring the possibilities for managing the site.
- Develop the personal interpretive opportunities.

Phase 2

- Develop the Explorer's Guide.

Comment

Despite being a very significant primary story point, and having great potential as a primary starting point due to proximity to Interstate 90, no fixed strategies are recommended at this time due to issues with vandalism. It is unlikely that those issues will be taken care of without either limiting access to the site, having a personal presence on site at all times or a combination of the two. When that happens, the site can be developed as a key interpretive site, possibly the hub of the entire Ice Age Floods network in the eastern part of the state. The first step at that point would be to develop a Master Plan for the site, and develop an interpretive master plan as a component of that plan. Since the agencies currently having jurisdiction over key parts of the site are not as focused on recreation and interpretation, it may be necessary to develop a Memorandum of Understanding (MOU) that allows WSPRC to manage the site.

Eastern Region

Ginkgo Petrified Forest State Park

Overview

Ginkgo Petrified Forest is a relatively significant site in terms of the Ice Age Floods Interpretive Network. The site contains or has good visual access to a lot of features associated with the Ice Age Floods, including ice-rafted erratics, bergmounds, and cliffs of Columbia River basalt sculpted by flood waters. The park is currently best known for petrified wood, which relates to the Columbia River basalt flows. The flows are a key to features formed by the Ice Age Floods and played a major role in forming the deposits of petrified wood. The features visible from the interpretive center – the sheared off cliffs showing the underlying layers of Columbia River basalt flows – create a good opportunity to focus on the story of the Ice Age Floods and the role of the basalt flows in creating the opportunity for the flood waters to carve the features that are visible today. The bergmounds and ice-rafted erratics, both depositional features, create the opportunity to tell the story of the role of the depositional impacts of the floods. The other important factor is that the site, especially the interpretive center, receives very high visitation in part because it is just off Interstate 90.

Status

Ginkgo is a primary story point and a primary starting point.

Recommended Changes to Layout and Infrastructure

The existing interpretive trail needs to be upgraded. An additional interpretive trail needs to be developed just west of the interpretive center, and an erratic needs to be moved to a location near the interpretive center.

Recommended Ice Age Floods Interpretive Strategies

Exterior Interpretive Panels – Interpretive Center

Location

Along the rock wall behind the interpretive center.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods were a key force in sculpting the route of the Columbia;
- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods;
- Know that the impacts were both erosional and depositional;
- Know that Ginkgo contains a lot of erratics and other deposits associated with the floods.

Description and Concept

At this time, we envision the following panels to be developed for this location:

Panel 1:

This is the Ice Age Floods Thematic Overview Panel to provide context for the site-specific story. Design concept is included in the general strategies section. The Ice Age Floods Height Finder would be associated with this panel.

Note: Panels 2, 3, and 4 tell a sequential story involving the following events – Columbia River Basalt Flows, Ice Age Floods flowing as they would before being slowed by constrictions, and the Ice Age Floods backed up by downstream constrictions.

Panel 2:

This panel, oriented across the river, focuses on the Columbia River basalt flows. One possible design concept is to use an image representing the landscape prior to the basalt flows with a series of basalt flows superimposed. The Columbia would be included, with graphics depicting the river cutting down through the flows. An inset map would indicate the extent and origin of the flows. Supporting text would provide a brief overview of the event and impact.

Panel 3:

This is a site-specific interpretive panel focusing on the impact of the flood waters on the channel of the Columbia. One possible design concept is to use a stylized image of the area with a transparent flood covering it as a backdrop for highlighting the erosional impacts. Those impacts would be highlighted with the use of enlarged visuals, such as one depicting the process of how flood waters erode columnar basalt. It should be clear after reading panels 3 and 4 that it was the combination of basalt and the floods that produced the iconic features associated with the floods.

Panel 4:

This panel, oriented downstream, focuses on the narrow points in the topography that caused the flood waters to back up and form a temporary lake, which resulted in depositional features such as bergmounds and ice-rafted erratics. One possible design concept is to use a stylized bird's-eye perspective of the stretch of river from just upstream to beyond sentinel gap covered with transparent flood waters as a backdrop for enlarged images highlighting specific depositional features. A line or some other graphic device would indicate the location of the feature by connecting the visual to a point on the background visual. Possible images include one showing icebergs with rocks left stranded by receding water, and another showing how bergmounds are formed. It should be clear after viewing the panel that a person can see erratics and possibly bergmounds by visiting other parts of the park. The image should also include an inset map of the area showing the extent of the temporary lake caused by the downstream constriction. Also, the existing interpretive center should be includ-

ed in the background image for perspective as should the road and the interpretive area with the interpretive trail.

Note: Disagreement exists among specialists as to whether Sentinel Gap caused water to back up or simply to flow across the landscape in other directions, and whether the temporary lake that covered this area was primarily due to the constriction at Wallula Gap. That will have to be taken into account when the panel is eventually designed.

Note: The area should have another exterior panel focusing on the formation of the petrified wood, and the role of the basalt flows in the process. A possible panel has been identified in another plan for interpreting the Ice Age Floods in Ginkgo prepared by Ryan Karlson. The design of that panel should take into account the information presented in the other panels.

Audio Listening Post**Location**

Along the rock wall behind the interpretive center

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods were a key force in sculpting the ancestral route of the Columbia;
- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods;
- Know that the impacts were both erosional and depositional;
- Know that Ginkgo contains a lot of erratics and other deposits associated with the floods.
- Know the location of additional Ice Age Floods interpretive opportunities for the visually impaired.

Description and Concept

This would provide the same information as on the interpretive panels, but would use sound effects when possible, such as the sound of a flood coming. One possibility is to have it narrated by an actor playing the part of Bretz, with a prologue focusing on the story of the discovery of the event.

*Interpretive Panel and Erratic****Location***

Near the interpretive center, possibly in the same area as the chunks of petrified wood. Note that the panel is intended to interpret an erratic, which requires moving one to this location.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know what an erratic is, where they came from and how they got to Ginkgo Petrified Forest.
- Know that the park contains a lot of erratics.

Description and Concept

At this time, we envision the following panel to be developed for this location:

Panel 1:

This panel focuses on erratics – what they are, where they came from and how they got here. One possible design concept is a series of images depicting the ‘life’ of an erratic. The first would highlight the ice sheet and how the rocks came to rest on the surface or be buried within the ice. The second image would show the Ice Age Floods carrying the chunk of ice with its load of rock to this point. The third would focus on the water receding, stranding the rocks.

*Regional Ice Age Floods Orientation Panel****Location***

This panel will be located in a kiosk or some similar structure located along the margin of the parking area near the interpretive center.

Description and Concept

Design concept for the panel is included in the general strategies section. The structure containing the panel should also contain a site orientation panel* and a place for posting temporary information, such as schedules for interpretive tours of the center.

*Suggested design for this panel is included in another plan for interpreting the Ice Age Floods in Ginkgo prepared by Ryan Karlson.

*Interpretive Trail - Existing****Location***

This is the existing interpretive trail, which currently focuses only on petrified wood. Specifically, the section of the trail from the ‘Y’ south should be developed to interpret the Ice Age Floods. The trail to the north can highlight the petrified wood story.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the impacts were both erosional and depositional, with this area impacted through deposition;
- Know what an erratic is;
- Know that the erratics carried to this point were on icebergs.

Description and Concept

We recommend re-developing the existing trail to focus on the following topics:

- Climate change using the contrast between the existing vegetation and the species of trees that are petrified;
- The impact of deposition features related to the Ice Age Floods on flora and fauna using ice-rafted erratics, bergmounds and bedload as focal points for explaining impacts;
- The role of the Columbia River Basalt flows on the geomorphology, flora and fauna of the area.

In terms of the delivery system, we recommend an interpretive panel at the beginning of the trail providing an overview of the key topics and individual interpretive signs interpreting the features. One possible design concept is to use a series of visuals depicting the area prior to the floods, the area during the floods with the specific depositional impacts highlighted, and the area now with the evidence and impacts of those deposits/features highlighted.

Note: Several panels for this trail have been identified in another plan for interpreting the Ice Age Floods in Ginkgo Petrified Forest State Park prepared by Ryan Karlson as part of a Master’s degree. Those include a panel focusing on an erratic. Additional panels will be required to complete the interpretation of the Ice Age Floods along this trail.

Interior Exhibits

Location

The existing visitor center.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the impacts from the Ice Age Floods were both erosional and depositional;
- Know that the area contains a large number of erratics;
- Know that icebergs were carried in the flood waters, which were responsible for carrying erratics to the upper parts of the park;
- Be inspired to visit Frenchman Coulee.

Description and Concept

The interpretive center should have a major exhibit focusing on the Ice Age Floods, but with an emphasis on the specific type of depositional features found in the park. One possibility is to develop a multi-part exhibit with the parts focusing on the following:

- The setting. This would show Glacial Lake Missoula and Glacial Lake Columbia, but focus more on the ice sheet with its load of rocks and sediment to provide an understanding of the origins of the material that was ice-rafted to this location.
- The initial surge. This would show the area as the flood waters poured through. A major focus should be on the erosion as the flood waters poured over the Quincy Basin, forming Frenchman Coulee, and pouring through the ancestral route of the Columbia, tearing out the columnar basalt to form the cliffs we see today. This part should make people aware of the opportunity to visit Frenchman Coulee.
- The temporary lake. This would focus on the area as it looked when inundated by the temporary lake, with an explanation of how and why the lake formed. It would show icebergs, complete with erratics and sediment, floating around the margins of the lake and getting stranded. This part of the exhibit should make people aware of the opportunity to see erratics along the interpretive trail in the other section of the park.

- The discovery. This part of the exhibit focuses on the story of Bretz and Pardee and the evolution of the explanation of the floods. It will be important in this exhibit to make people aware that the explanation is still evolving.
- Discovering the story for yourself. An associated exhibit should provide a visual menu of key interpretive sites associated with the floods in the surrounding area that can be visited, with information on the Regional Explorer's Guide, auto tours and other State Parks with interpretive opportunities.

Distribution Center

Description and Concept

The gift shop area of the visitor center should have a section containing selected literature, videos, DVDs, auto tour guides and any other such interpretive strategies about the Ice Age Floods. It could also contain literature related to other geomorphologic events that shaped the area. Because of limited space, it is important to give priority to those guides and auto tours that encompass the immediate area. Note also that it is critical that the person who staffs the visitor center be aware of additional interpretive opportunities in the area that relate to the Ice Age Floods.

Ice Age Floods Guided Walks

Location

Guided walks can take place in many parts of the park, including Iceberg Pass, along the existing interpretive trail, and along the new interpretive trail recommended for the area just west of the interpretive center. Guided walks in that area should begin as soon as possible and not wait until a trail is developed.

Key Objectives

Specific objectives will depend on the route, but all guided walks should achieve the general objectives identified in the introduction. In addition, after participating in a guided walk in Ginkgo, visitors will:

- Know that affects were both erosional and depositional;
- Know that the area was formed by a number of major geomorphologic events.

Interpretive Talks

Key Objectives

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Ginkgo, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area;
- Know that the impacts from the floods were both erosional and depositional;
- Know what an erratic is, where they came from and how they got to Ginkgo Petrified Forest.

Description and Concept

Within the array of talks should be ones focusing on the Ice Age Floods with emphasis on how the floods sculpted the topography of the area, which in turn affected the biotic components. Ideally the Regional Ice Age Floods Orientation Map/Brochure would be distributed at the end of the program. These talks could be offered in several places, but the best place is probably in a location near the interpretive center with a view of the basalt cliffs on the other side of the Columbia. Ideally, benches or some other form of seating could be developed in the areas where talks are presented.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Interpretive Trail:

This loop trail, located in the area just west of the interpretive center, focuses on interpreting a number of different topics, including the Ice Age Floods. The initial focal point, due in part to audience expectations, will be on ginkgo trees and other species of flora that occupied the area and the climate at the time. That can then be used to contrast with the flora now as a lead-in to the concept of climate change over time. Other topics such as basalt flows and the Ice Age Floods can be interpreted, but from the viewpoint of how those events affected the flora and associated fauna of the area.

Priority for Implementation

Phase 1

- Develop the personal interpretive strategies with priority on talks and walks that occur or originate at the interpretive center.
- Move an erratic to the interpretive center and develop the panel for that erratic.
- Develop the exterior interpretive panels for the interpretive center.
- Stock the Distribution Center.

Phase 2

- Re-develop the existing interpretive trail.

Phase 3

- Re-develop the interior exhibit.

Eastern Region

Wanapum Recreation Area

Note: Wanapum Recreation Area is grouped with Ginkgo Petrified Forest State Park because they are administered together.

Overview

Wanapum does not contain key features associated with the Ice Age Floods. However, it does have key features visible from the site, including downstream constrictions, such as Sentinel Gap, that would have caused flood waters to back up the Columbia River forming a temporary lake; basalt cliffs on the east side of the river that were formed by the combination of layers of Columbia River basalt flows and the erosional force of the Ice Age Floods; and clearly visible slackwater deposits on the west bank of the Columbia River just downstream from the park. Wanapum has high visitation and is proximate to a variety of key features associated with the Ice Age Floods, including Frenchman Coulee.

Status

Wanapum is a secondary story point and primary starting point.

Recommended Changes to Layout and Infrastructure

This park needs an amphitheater as soon as possible. With the number of overnight sites and the occupancy levels, there is a high potential to reach a lot of people with evening programs and stimulate them to begin an Ice Age Floods interpretive experience.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel – Day Use Area

Location

On the point of land jutting into the water at the north end of the Day Use Area.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the Ice Age Floods were a key factor in sculpting the landscape in the area;
- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods;
- Know that significant impacts in the area were due to the huge hydraulic lake that formed due to downstream constrictions;
- Be inspired to visit the Interpretive Center at Ginkgo.

Description and Concept

The following panel is recommended:

Panel 1:

This panel focuses on the impact of Sentinel Gap and other downstream constrictions on the floods, and by association, on the surrounding area. One possible design concept is to use a long-range bird's-eye perspective of the stretch of river from Ginkgo to below Sentinel Gap with the flood waters superimposed to indicate the extent of the temporary lake. Shading can be used to show areas of deposits, including those within Ginkgo and those south of Wanapum, with associated images of erratics, bergmounds, and material. Supporting text would explain different impacts due to the lake. A sidebar would contain a brief overview of the Ice Age Floods story to provide context for the site-specific story. Also, a brochure holder would distribute the Regional Ice Age Floods Orientation Map/Brochure.

Note: The Ice Age Floods Height Finder would be associated with this panel.

Note: Disagreement exists among specialists as to whether Sentinel Gap caused water to back up or simply to flow across the landscape in other directions, and whether the

temporary lake that covered this area was primarily due to the constriction at Wallula Gap. That will have to be taken into account when the panel is eventually designed.

Note: State Park personnel have considered developing a viewpoint on the gravel bar adjacent to the south end of the Day Use Area parking. If this occurs, the viewpoint would be an ideal place for the interpretive panel because ADA access would be easier to develop and the slackwater deposits to the south would be more visible.

Interpretive Talks (Evening Programs)

Key Objectives

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Wanapum, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area;
- Know that floods that affected the area during the Ice Ages were not just the Missoula Floods;
- Know that this area was covered by a huge temporary lake caused by downstream constrictions;
- Be inspired to visit the Interpretive Center at Ginkgo.

Description and Concept

Evening programs should include presentations focusing on the Ice Age Floods. The Regional Ice Age Floods Orientation Map/ Brochure should be distributed at the conclusion of the program.

Distribution Center

Description and Concept

This site does not have a visitor center and we are not proposing one for the park, but it appears as if the visitor contact station could distribute key interpretive literature, such as auto tour guides, guidebooks and any other such interpretive strategies about the Ice Age Floods.

Ice Age Floods Interpretive Trail

Location

Along the edge of the river, linking the Day Use Area with the campground. The amphitheater would be along the route.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area;
- Know that floods that affected the area during the Ice Ages were not just the Missoula Floods;
- Know that this area was covered by a huge temporary lake caused by downstream constrictions;
- Know that the slowing down of the flood waters resulted in deposition in the surrounding area, including sites south of Wanapum, and in Ginkgo;
- Be inspired to visit the Interpretive Center at Ginkgo;
- Know that the floods affected and continue to affect the biotic components of the ecosystem, including humans.

Description and Concept

To get the most use out of the interpretive panel in the Day Use Area, it is important to facilitate use by those camping at the campgrounds. Linking the Day Use Area to the lower campground with an interpretive trail will help because most visitors want to get near the water, and many like to take a walk in the evenings or at some point during the day. The trail would interpret the basalt cliffs across the river, the flora and fauna of the area, and the human history with emphasis on how it was affected by the floods. The interpretation along the trail could be delivered by signage or by a brochure keyed to features. The following are design concepts for the introductory panels:

Panel 1:

This is a thematic overview of the impact of the floods on biotic components of the ecosystem from the time of the floods forward. One possible design concept is to use

the scene in front of the panel as a backdrop to highlight impacts on the landscape coupled with use of the new landscape by different biotic components of the ecosystem. Supporting text would emphasize the connections. For example, the flat area with the campground would be highlighted as a camp site; the soils due to deposition by the floods would be connected to vegetation that can tolerate such conditions; and the columnar basalt cliffs would be highlighted as perfect habitat for raptors and other wildlife. The design could include a visual depicting what the area might have looked like prior to the floods, including flora and fauna, to emphasize the impact on the biotic components of the environment.

Panel 2:

This is a trail orientation panel. One possible design concept is to use a stylized, bird's-eye perspective of the trail as a backdrop for highlighting the stops and the features at those stops. Supporting text would focus on difficulty, length and time required. A brochure holder would dispense the trail brochure.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Boaters Guide to the Columbia:

This would be a complete orientation and interpretive guide from the perspective of people boating on the Columbia in the stretch of river between Chelan Falls and Rocky Reach Dam, and between Rocky Reach and Rock Island Dams. Interpretation would include features related to the Ice Age Floods as well as those related to other geomorphologic events. It would also interpret flora, fauna and cultural history.

Priority for Implementation

Phase 1

- Develop the interpretive panel.
- Develop the amphitheater and associated evening programs.

Phase 2

- Develop the interpretive trail.

Eastern Region

Lincoln Rock State Park

Overview

Lincoln Rock is a good place to capture people's interest due to its concentration of visitors because of the campground and Day Use facilities. Plans exist to connect this park to Wenatchee Confluence with a regional trail, which will increase its use. Although the impacts of the Ice Age Floods are not as prominent here as at locations like Frenchman Coulee and Dry Falls, it is proximate to a lot of interesting features and it does have other intriguing geologic features including Lincoln Rock across the river and Turtle Rock upstream.

Status

Lincoln Rock is a secondary story point and a primary starting point.

Recommended Changes to Layout and Infrastructure

No changes recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel

Location

On the point of land jutting into the river at the Day Use Area.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods were a key force in sculpting the ancestral route of the Columbia;
- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods;

Design Concepts

The following panel is recommended:

Panel 1:

This is a site-specific panel focusing on the impacts of the floods in this area with emphasis on those impacts visible from this site and other nearby sites within the park. These include the canyon walls on the west side of the river and scabland features. One possible design concept is to show side-by-side visuals of the scene in front of the viewer. The first would be of the canyon with a transparent flood superimposed. Enlarged visuals would highlight the erosive action of the floods on the canyon walls and in areas where scabland features were formed. The second visual would be the scene now, with the resulting features formed by the flood waters highlighted. A sidebar would contain a brief overview of the Ice Age Floods story to provide context for the site-specific story. Also, a brochure holder would distribute the Regional Ice Age Floods Orientation Map/ Brochure.

Note: The Ice Age Floods Height Finder would be associated with this panel.

Note: This site could have a panel focusing on the formation of Lincoln Rock. It is not included because, based on our understanding of the Ice Age Floods story, it was not formed by that event. A panel focusing on the formation of Turtle Rock would also be effective because it is so prominent. We were unable to substantiate the origin of the rock. It could be a landslide feature, it could be part of a resistant ridge of rock exposed by the erosive action of the Ice Age Floods or it could have some other origin. If it was sculpted in part by the Ice Age Floods, a panel should be added focusing on that story.

Distribution Center

Description and Concept

This site does not have a visitor center and we are not proposing one for the park, but it does have a concession facility in the Day Use Area that could be used to distribute

key interpretive literature, such as auto tour guides, guidebooks and any other such interpretive strategies about the Ice Age Floods. If that is not possible, a seasonal trailer for distributing information could be substituted.

Interpretive Talks (Evening Programs)

Key Objectives

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Lincoln Rock, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area;
- Know that floods that affected the area during the Ice Ages were not just the Missoula Floods.

Description and Concept

Within the array of evening programs offered should be presentations on the Ice Age Floods with emphasis on how the floods sculpted the topography of the surrounding area and the other geomorphologic forces and events that contributed to the landscape as it looks today. Ideally the Regional Ice Age Floods Orientation Map/Brochure would be distributed at the end of the program.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Boaters Guide to the Columbia:

This would be a complete orientation and interpretive guide from the perspective of people boating on the Columbia in the stretch of river between Chelan Falls and Rocky Reach Dam, and between Rocky Reach and Rock Island Dams. Interpretation would include features related to the Ice Age Floods as well as those related to other geomorphologic events. It would also interpret flora, fauna and cultural history.

A Geomorphology Features Playground:

This would use miniature replicas of features found in the surrounding environment as play apparatus, accompanied by interpretive panels focusing on the formation of that feature. Features could include Turtle Rock, Lincoln Rock, and columnar basalt. Associated interpretive panels would interpret the features and provide an opportunity for parents to ask questions of their children such as, "what would live in this feature?" or, "how was this feature formed?" The playground should be located in the Day Use Area near the restrooms.

Interpretive Trail:

Lincoln Rock currently has a trail atop a berm overlooking the river that runs along the margin of the camping area. Interpretive information could be tied to sites and features along the trail. The interpretation could cover a variety of topics, including the Ice Age Floods.

Note: We are not recommending developing an interpretive trail dedicated to the Ice Age Floods. We are also not recommending a single panel on the Ice Age Floods. We are simply noting that an interpretive trail in this location may reach a lot of people and could include some Ice Age Floods interpretation.

Priority for Implementation

Phase 1

- Develop the evening programs.
- Stock the Distribution Center.

Eastern Region

Lyons Ferry

Overview

The primary significance of Lyons Ferry in relation to the Ice Age Floods and telling that story is threefold. First, it is located at the confluence of the Snake and Palouse Rivers, with good views up the Palouse Canyon, a feature formed and sculpted by the Ice Age Floods, and good views of a large gravel bar across the Snake. Second, it is along an access route from Walla Walla to Palouse Falls and from the Snake River to Palouse Falls, so it is a point that can be used to market the Palouse Falls experience. Finally, the Snake River canyon was impacted by flood waters. During the Ice Age Floods, floodwaters pooling behind Wallula Gap extended up the Snake, past this point, to Lewiston. Also, the Bonneville Floods flowed down the Snake. This area contains a number of other features that can be interpreted and stories that can be told using those features, including the following:

- The Marmes Rock Shelter and the story of its discovery and subsequent flooding;
- Native American use of the area;
- A historical ferry crossing that provided a key link in the road connection from Fort Benton, Montana to Walla Walla;
- The existing bridge over the Snake river was built in another location, dismantled, stored and reassembled here;
- The building of the dams on the Columbia River and its effect on the land today.

Status

Lyons Ferry is a primary story point and a secondary starting point.

Recommended Changes to Layout and Infrastructure

The amphitheater needs to be upgraded in the campground, otherwise, no recommended changes in the developed part of the park.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel Cluster - Day Use Area

Location

In the center of the Day Use Area, in the same location as the existing interpretive panel.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that impacts from the floods were both erosional and depositional;
- Know that Palouse Canyon is a new landscape feature carved by the floods;
- Know that the impacts from the floods on the landscape affected how humans used the area.

Description and Concept

The following panels are recommended:

Panel 1:

This is the Ice Age Floods Thematic Overview Panel to provide context for the site-specific story. Design concept is included in the general strategies section. The Ice Age Floods Height Finder would be associated with this panel.

Panel 2:

This is the Regional Ice Age Floods Orientation Panel. Design concept is included in the general strategies section.

Panel 3:

This is a site-specific interpretive panel focusing on the formation of the Palouse Canyon and the use of the canyon by Native Americans. One possible design concept is to use a series of visuals to highlight the impact of the floods in sculpting the canyon and subsequent use of the canyon by Native Americans. One possible design concept is to use a series of visuals with the first

depicting the area prior to the floods; the second depicting the area covered by transparent flood waters with the sculpting of the canyon highlighted; the third image depicting Native Americans using the new feature for travel, hunting, fishing and gathering; and the final image depicting the area now, with features sculpted by the flood waters identified.

Interpretive Panel Cluster – Boat Ramp Area

Location

In the area of the boat ramp, near the water, adjacent to the parking area, and accessible to people using the restrooms without having to cross the parking.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that impacts from the floods were both erosional and depositional;
- Know that the impacts from the floods on the landscape affected how humans used the area.

Description and Concept

The following panels are recommended:

Panel 1:

This is a site-specific interpretive panel focusing on flood waters hitting the Snake River from the Palouse Canyon and backing up the Snake as a result of the constriction at Wallula Gap. Formation of the gravel bar would be included. One possible design concept would use a series of visuals depicting the area at different points in time. The first would depict the area inundated by flood waters as they arrived at the Snake from the north. The water would be transparent so erosional and depositional impacts could be highlighted, including formation of the gravel bar. The second would depict the area as it would have looked with water backing up from Wallula Gap. An inset in the second visual would indicate the cause (Wallula Gap) and the extent of the temporary lake. The final image would be of the area today with the gravel bar and other features associated with the Ice Age Floods identified. A sidebar would contain a brief overview of the Ice Age Floods story to provide context for the site-specific story. Also, a brochure holder

would distribute the Regional Ice Age Floods Orientation Map/Brochure.

Panel 2:

This is a site-specific panel focusing on the Bonneville Floods. One possible design concept is to use an image depicting the extent of Lake Bonneville and supporting text to provide an overview of the situation prior to the flood, and another image depicting the pathway of the floods. Supporting text would explain why the floods occurred and the impact on the Snake River channel and canyon.

Interpretive Panel Cluster – Gravel Parking Area

Location

In the gravel parking area at the north end of the park where tour boat passengers disembark for a trip to Palouse Falls.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that Palouse Canyon is a new landscape feature carved by flood waters;
- Know that the impacts from the floods on the landscape affected how humans used the area.

Description and Concept

The following panels are recommended:

Panel 1:

This is a site-specific interpretive panel focusing on the formation of the Palouse Canyon and the use of the canyon by Native Americans. One possible design concept is to use a series of visuals to highlight the impact of the floods in sculpting the canyon and subsequent use of the canyon by Native Americans. One possible design concept is to use a series of visuals with the first depicting the area prior to the floods; the second depicting the area covered by transparent flood waters with the sculpting of the canyon highlighted; the third image depicting Native Americans using the new feature for travel, hunting, fishing and gathering; and the final image depicting the area now, with features sculpted by the flood waters identified. A sidebar would contain

a brief overview of the Ice Age Floods story to provide context for the site-specific story. Also, a brochure holder would distribute the Regional Ice Age Floods Orientation Map/Brochure.

Note: This is very similar to the panel in the cluster located in the Day Use Area. However, we believe that the sites will be used by different audiences.

Note: The Ice Age Floods Height Finder would be associated with this panel.

Note: The other panels in this cluster would focus on other subjects. We suggest focusing on the Native Americans and one on transportation and its impact on cultural development. Ferry (including the historical ferry), boat, railroad and highway travel would be included on the latter panel.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Boater's Guide to the Columbia and Snake Rivers:

This would be an orientation and interpretive guide to the Columbia and Snake Rivers for those taking tour boats. It could be prepared in sections so only the section appropriate to this stretch of river would be distributed here, but the entire book could be available for people taking cruises up the river.

Priority for Implementation

Phase 1

- Develop the panel cluster for the center of the Day Use Area.

Phase 2

- Develop the panels for the Boat Ramp Area.

Phase 3

- Develop the panels for the gravel parking area

Eastern Region

Maryhill State Park

Overview

This site would have been inundated during the deepest Ice Age Floods but does not prominently exhibit the scabland features that dominate Columbia Hills State Park. The key opportunities relate to visuals of the Columbia River and the basalt cliffs across the river. The cliffs of columnar basalt were sculpted when the Ice Age Floods swept through this area, eroding the hillsides on either side of the river. The demarcation line indicating the height of the erosion by the floods along this stretch of the Columbia River is discernible if a person knows what to look for on the landscape.

Status

Maryhill State Park is a secondary story point and a secondary starting point.

Recommended Changes to Layout and Infrastructure

The long-term plan for interpretation in State Parks calls for personal interpretation in all units. This site currently does not have an amphitheater or an area conducive to giving evening programs. Consequently, such a space should be developed. However, we do not consider this to be a high priority in terms of interpreting the Ice Age Floods. Interpretive programs can be given in a variety of settings without capital investment as long as visitor needs are met.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel Cluster

Location

Near the restrooms in the Day Use Area. The site is easily accessible and has a good view across the river.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods were a key force in sculpting the route of the Columbia;
- Be inspired to visit nearby Columbia Hills State Park to learn more.

Description and Concept

The following panels are recommended:

Panel 1:

This is a site-specific panel focusing on the impacts of the floods in this area with emphasis on those impacts visible from this site or nearby areas, which are the basalt cliffs on the other side of the river and scabland features above the park. One possible design concept is to show side-by-side visuals of the scene in front of the viewer. The first would be of the canyon with a transparent flood superimposed. Enlarged visuals would highlight the erosive action of the floods on the canyon walls, the overtopping of the gorge walls by the flood waters, and the flood depositing material in the slower currents of back eddies formed as the flood waters flowed around obstructions in the channel. The second visual would be the scene now, with the resulting features formed by the flood waters highlighted. These would include the basalt cliffs, nearby scabland features, and the areas tucked in behind obstructions jutting out into the channel where soil was deposited so humans could grow crops, including grapes for wine. A sidebar would contain a brief overview of the Ice Age Floods story to provide context for the site-specific story. Also, a brochure holder would distribute the Regional Ice Age Floods Orientation Map/Brochure.

Note: The Ice Age Floods Height Finder would be associated with this panel.

Interpretive Talks (Evening Programs)

Key Objectives

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Maryhill, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the Columbia Gorge;
- Know that eastern Washington has a lot of spectacular and intriguing features that were sculpted by flood waters;
- Be inspired to visit Columbia Hills to get more information on the floods.

Description and Concept

Within the array of evening programs should be presentations on the Ice Age Floods with emphasis on how the floods sculpted the Columbia Gorge and where a visitor can go to see different types of features. Ideally the Regional Ice Age Floods Orientation Map/ Brochure would be distributed at the end of the program.

Distribution Center

Description and Concept

This site does not have a visitor center and we are not proposing one for the park. However, a county-run visitor information facility is located at the entrance to the park. It might be possible through a cooperative agreement to distribute regional Ice Age Floods literature from this facility.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Boater's Guide to the Columbia and Snake Rivers:

This would be an orientation and interpretive guide to the Columbia and Snake Rivers for those taking tour boats. It could be prepared in sections so only the section appropriate to this stretch of river would be distributed here, but the entire book could be available for people taking cruises up the river.

Priority for Implementation

Phase 1

- Build an amphitheater and develop the evening programs.
- Develop a cooperative agreement and stock the Distribution Center.

Phase 2

- Develop the interpretive panel.

Eastern Region

Mount Spokane State Park

Note: Mount Spokane State Park was not a part of this contract so the information is limited to a brief overview, its status, and general comments as to appropriate interpretive strategies.

Overview

This site would have been a good spot for viewing approaching flood waters so it is a good site to focus on impacts to the surrounding landscape.

Status

Mount Spokane State Park is a secondary story point and a secondary starting point.

Possible level and type of interpretive development

Typical secondary story sites have one or two site-specific panels with a brief overview of the floods on one of the panels, a brochure holder for distributing the Regional Ice Age Floods Orientation Map Brochure and an Ice Age Floods Height Finder. The site was not visited because it was not in the project, but if panels could be located with a view of the Spokane Valley and surrounding countryside, topics that would be appropriate include impact on the landscape with emphasis on features visible from that point, such as the Spokane River, and consequent impacts on human activities, with emphasis on activities visible in the viewshed.

Eastern Region

Palouse Falls State Park

Overview

The Ice Age Floods had a number of impacts on topographic features, including shaping existing features and creating new ones. Palouse Falls and the channel up and downstream from the falls are examples of new features created by the floods. The Palouse River used to flow down what is now Wash-tucna Coulee, but the floodwaters carved a new route including the spectacular canyon that heads at Palouse Falls. This feature is one of the icons of the Ice Age Floods, and arguably one of the top 5 topographic features associated with the event. It is probably one of the two most significant sites under the jurisdiction of the WSPRC.

Status

Palouse Falls is a primary story site and a secondary orientation site.

Recommended Changes to Layout and Infrastructure

In addition to an increase in the array of interpretive opportunities at Palouse Falls, significant modifications to the layout and infrastructure would increase visitor interest and holding power of this site, thus increasing the potential as a destination attraction. The following changes (depicted on Figure 8) are recommended:

Series of Pavilions:

Develop a series of 4 open air pavilions with roofs along the edge of the Palouse Canyon linked by a walking trail. The pavilions should be designed and located to reflect the step-like topography of the basalt layers in the canyon walls. One possible design concept is depicted in Figure 9. The approximate locations are depicted on the site plan. Pavilion 1, immediately adjacent to the existing parking area, replaces the existing viewpoint. It will contain interpretive panels and will be linked to the parking area by a fully accessible trail. Pavilion 2, located between the existing lower viewpoint and existing Vista House, in

a location so it is not visible from the Vista House, will be designed for giving presentations or for visitors to simply contemplate the view. Pavilion 3, to replace the existing Vista House, will also contain interpretive panels. Pavilion 4 will contain places to sit for people to contemplate the scenery and/or have the view interpreted through guide books or brochures.

Note: This configuration could change if the area near the upper overlook was developed as the primary parking and Day Use Area. In that case, primary interpretation should occur in the upper overlook, perhaps by combining the panels currently identified for the upper and lower overlook. The lower overlook could then become the contemplation area. The seating area in pavilion 2 would remain, but pavilion 4 would be eliminated because it would be too close to the parking and Day Use functions to be a contemplation area.

Note: The Vista House, also called the "Fryxell Overlook" is a memorial to a geologist from Washington State University (WSU) who was instrumental in interpreting remains at Marmes Rockshelter. His career ended prematurely when he was in a tragic automobile accident. His name and honor should be preserved in some way if the overlook is changed in any way.

Interpretive Trail:

Construct a fully accessible interpretive trail from the lower parking area up to Pavilion 3. Interpretation along the trail is described in the section on interpretive strategies.

Note: If the upper area were developed as the primary parking and Day Use Area, the trail could be confined to the relatively level area thus eliminating the need for a long ADA trail from the lower parking lot.

Lower Parking Area:

Re-configure the lower parking area to accommodate bus drop-off, loading and park-

ing. This would include a staging area for groups.

Upper Parking Area:

Develop parking at the western edge of the park south of the existing utility shed. Design should use existing topography and vegetative screening to minimize visual access to parking area from park area.

Note: This area includes a section of land owned by the railroad so the first step would be to contact the railroad about obtaining or using that section of land.

New Picnic Area:

Develop picnic sites in the flat area between Pavilion 3 and the railroad.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel Cluster – Lower Overlook

Location

This cluster of three panels would eventually be located in Pavilion 1, at the rim of the canyon, but for now will be located in an area that is ADA accessible and has a view of Palouse Falls.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods formed the existing route of the Palouse River and the Palouse River Canyon;
- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods;
- Know that other geomorphologic events, including basalt flows and movement of tectonic plates, contributed to the formation of the features in this area;
- Be inspired to take the auto tour that includes this site.

Description and Concept

The following panels are recommended:

Panel 1:

This is the Ice Age Floods Thematic Overview Panel to provide context for the site-specific story. Design concept is included in

the general strategies section. The Ice Age Floods Height Finder would be associated with this panel.

Panel 2:

This is the Regional Ice Age Floods Orientation Panel. Design concept is included in the general strategies section.

Panel 3:

This is a site-specific panel focusing on the shift in the course of the Palouse River and the formation of Palouse Falls. One possible design concept is to use a series of visuals, from a bird's-eye perspective, of the landscape. The first would depict the Palouse River in its ancestral channel; the next would show the floods overtopping the channel and finding a new route. An inset would highlight why the flood waters chose this route, which involves exploiting weaknesses in the surface caused by tectonic cracks. The final visual would highlight the flood waters covering the area of Palouse Falls. The water would be transparent to allow highlighting, with a supporting graphic, how the columnar basalt was eroded away, causing the waterfall to recede to its present location in the canyon.

Interpretive Panel Cluster – Upper Overlook

Location

In the current Vista House and eventually located in Pavilion 3 in the same location.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods were a key force in sculpting the Palouse River Canyon;
- Know that other geomorphologic events, including basalt flows and movement of tectonic plates, contributed to the formation of the features in this area.

Description and Concept

The following panels are recommended:

Panel 1:

Whereas the panel at the lower overlook focused on the new route of the Palouse River and the formation of Palouse Falls, this panel will focus on downstream impacts of

the flood waters, including the carving of the Palouse Canyon and the sculpting of loess hills to the south. One possible design concept is to use a pair of visuals, with the first showing a cross-section of the area as it would have looked after the basalt flows, with a clear indication that it was a plateau. The second would depict the area during the time the flood waters were traveling through. Transparent flood water would allow a person to see the erosion taking place, the cliffs starting to form, and the erosion of the loess hills. An inset visual would depict the process by which water erodes columnar basalt. The last visual would represent the scene today, with features relating to the basalt flows and the floods highlighted and identified.

Panel 2:

This panel focuses on how the change in landscape affected human activity in the area. One possible design concept is to use a bird's-eye stylized perspective of the area from Palouse Falls to the Snake River (Lyons Ferry) as a backdrop for enlarged images of various human activities over time, including hunting, fishing and gathering within the Palouse River Canyon, and tourism through the ages. Ideally, this panel would be developed in conjunction with associated panels at Lyons Ferry that focus on human activity in that area.

Interpretive Talks

Location

Talks could be held anywhere, but we recommend developing a covered seating area (Pavilion 2) on the edge of the canyon between the lower and upper overlook for presenting talks.

Note: This site has the advantage of being hidden from view from the Vista House, but the disadvantage of not having a good view of the falls.

Key Objectives

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Palouse Falls, visitors will:

- Know that the Ice Age Floods sculpted the

Palouse River Canyon and Palouse Falls, and were one of several major forces to shape the surrounding area.

Description and Concept

Talks would focus on the Ice Age Floods, the impact on the physical landscape, and the resulting impact on flora, fauna and human activity. Ideally, the Regional Ice Age Floods Orientation Map/Brochure would be distributed at the conclusion of the talks.

Ice Age Floods Interpretive Trail

Location

This trail would connect the parking area with the upper viewpoint.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Have a sense of the impact of the floods on this landscape, and by association, on the flora and fauna and on human activities.

Description and Concept

This short trail would use the features in the viewshed and existing vegetation to focus on the variety of impacts of the Ice Age Floods. A kiosk at the beginning of the trail would include an introductory interpretive panel with an overview of the impact on the biotic elements of the ecosystem, including humans, and a trail orientation panel. The interpretation along the trail could be delivered by signage. The following are design concepts for the introductory panels:

Panel 1:

This is a thematic overview of the impact of the floods on biotic components of the ecosystem from the time of the floods forward. One possible design concept is to use a series of two visuals depicting the area before and after the floods as a backdrop to highlight impacts on the landscape. The major focus would be on the use of the new landscape by biotic components of the ecosystem with emphasis on the connections to the impacts by the floods. For example, the thin soils due to scouring by the floods would be connected to vegetation that can tolerate such conditions; the columnar basalt cliffs would be highlighted as habitat for rap-

tors and other wildlife, and the vegetation preferring thick soils would be highlighted in areas where such accumulations exist due to back eddies.

Panel 2:

This is a trail orientation panel. One possible design concept is to use a stylized, bird's-eye perspective of the trail as a backdrop for highlighting the stops and the features at those stops. Supporting text would focus on difficulty, length and time required.

Ice Age Floods Guided Walks

Location

Guided walks could be offered in several areas, including the flat bench south of the existing parking and the trail out to the overlook above the Pinnacles.

Key Objectives

Specific objectives would depend on the walk, but all guided walks should achieve the general objectives identified in the introduction. In addition, after participating in an Ice Age Floods guided walk at Palouse Falls, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area, especially the falls and canyon;
- Know that Palouse Falls and Canyon are new features, sculpted by the Ice Age Floods.

Description and Concept

The focus would be on the impact of the Ice Age Floods on the physical and biotic components of the ecosystem, including humans. The interpretation should include a more detailed explanation of a receding waterfall, and of how the Pinnacles were formed.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Guided Interpretive Tours:

These guided tours would originate on the cruise ships coming up the Snake and docking at Lyons Ferry. Interpretation would cover a wide variety of topics, including the Ice Age Floods.

Priority for Implementation

Phase 1

- Develop personal interpretive strategies, including the interpretive walks.
- Develop a Master Plan for the park.

Phase 2

- Develop the panels for the lower overlook, but place them at the edge of the parking area temporarily until the lower viewpoint can be connected to the parking area via a fully accessible trail.
- Develop the panels for the upper overlook and re-locate the memorial.

Remaining Phases

Since all other recommended interpretive strategies are tied to infrastructure development, what happens next at Palouse Falls depends significantly on the decisions regarding development of the park, which hinges on a wide variety of factors, most of which have little to do with interpretation. Ideally, we would like to see the following:

Phase 3:

- Develop the fully accessible trail to the lower viewpoint and re-locate the panels.
- Develop the pavilions and walking trail linking the structures.
- Construct a fully accessible interpretive trail from the lower parking area up to Pavilion 3. Interpretation along the trail is described in the section on interpretive strategies.

Phase 4:

- Re-configure the lower parking area to accommodate bus drop-off, loading and parking. This would include a staging area for groups.

Phase 5:

- Develop additional parking at the western edge of the park south of the existing utility shed. Design should use existing topography and vegetative screening to minimize visual access to parking area from park area.
- Develop a picnic area in the flat area between Pavilion 3 and the new parking area.

Eastern Region

Potholes State Park

Overview

This park is significant for several reasons. First, because of wind-blown sand that created dunes and depressions. Sand was dropped by the Ice Age Floods as the water lost velocity crossing the Quincy Basin. The wind carried and shaped the sand into typical crescent-shaped dunes. Water collecting in the depression created what have been termed 'potholes' although they are not true potholes of the type created by moving water. When O'Sullivan Dam was built, many of the dunes were inundated. Second, the path of the Columbia River was just east of park when the Okanogan Lobe blocked the ancestral route of the Columbia, forcing the flood waters south, where they sculpted and flowed down the Grand Coulee. Third, the park is situated in the midst of significant features associated with the Ice Age Floods, including Lind Coulee, ice-rafted erratics, and the Drumheller Channels, one of the most spectacular scabland tracts of the Ice Age Floods. One issue involving interpretation in the park is that the sand dunes are most visible in the north end of the park, but the public access is at the south end.

Status

Potholes is a secondary story point and a secondary starting point.

Recommended Changes to Layout and Infrastructure

If the existing interpretive trail is to remain, it should be upgraded to ADA accessibility and the interpretation re-developed.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel Cluster

Location

In the Day Use Area at the edge of the water oriented to the east across the reservoir to the small butte marking the northern end of Drumheller Channels.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods;
- Know that the potholes for which the park was named were formed by depressions between sand dunes and that the sand was deposited by the floods elsewhere and carried to this location by wind;
- Know that the term 'pothole' generally refers to rounded depressions in bedrock carved out by the action of water;
- Be inspired to explore the area and discover Ice Age Floods features, especially Drumheller Channels.

Description and Concept

The following panels are recommended:

Panel 1:

This is a site-specific panel focusing on the erosive action of the floods in this area. One possible design concept is to use a bird's-eye perspective of the area as it might have looked during the floods that occurred when the Okanogan lobe blocked the flow of water down the ancestral route of the Columbia (with the water transparent so the viewer can see the features under the water). The view would include Frenchman Hills, Lind Coulee and Drumheller Channels. Supporting text would explain how Frenchman Hills was a 'collector' feature that forced the water to the Drumheller Channels. Another text block, with supporting visuals, would show how the channels were eroded. An inset should show the channels as they look today. The panel should make visitors aware of the opportunity to visit the Drumheller Channels. A sidebar would contain a brief overview of the Ice Age Floods story to provide context for the site-specific story. Also, a brochure holder would distribute the Regional Ice Age Floods Orientation Map/Brochure.

Note: The Ice Age Floods Height Finder would be associated with this panel.

Panel 2:

This is a site-specific panel focusing on how the 'potholes' were formed by sand blowing in from elsewhere. One possible design concept is to use a series of diagrams or schematics showing the sand being deposited by flood waters; the wind blowing the sand into dunes; water collecting in the dunes; and the dam being built that inundated a lot of the dunes. This could also have an image of ducks and wildlife inhabiting or using the potholes and humans hunting the waterfowl and wildlife. Supporting text would clarify what was happening in each image. The panel should have a sidebar depicting a true 'pothole' and explaining the origin of such a feature.

Interpretive Talks

Key Objectives

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Potholes, visitors will:

- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods;
- Know that the potholes for which the park was named were formed by depressions between sand dunes and that the sand was deposited by the floods elsewhere and carried to this location by wind;
- Know that the term 'pothole' generally refers to rounded depressions in bedrock carved out by the action of water;
- Be inspired to explore the area and discover Ice Age Floods features, especially Drumheller Channels.

Description and Concept

Within the array of evening programs should be presentations on the Ice Age Floods with emphasis on how the floods impacted the area. Drumheller Channels, Lind Coulee, the Potholes and Frenchman Hills should be emphasized. Ideally a Regional Ice Age Floods Orientation Map/Brochure would be distributed at the end of the program.

Ice Age Floods Trips from Potholes

Description and Concept

This is a small booklet highlighting short trips of discovery from the park. Potholes State Park is one of the few parks where it does not matter which road a person takes to leave the park, he or she will pass by significant features related to the Ice Age Floods. The trip to the west could be a long loop that includes the erratics along Frenchman Hills, Ginkgo State Park, Frenchman Coulee, Lind Coulee and back. The trip south would focus on Drumheller Channels. The trip to the east would include Lind Coulee and from there, perhaps north to Quincy Basin. On all trips, features and landscapes would be interpreted in relation to the Ice Age Floods.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Boaters Guide to the Potholes Reservoir and Moses Lake:

This is probably first and foremost an orientation guide for boating and fishing on the lakes or it will not be compelling enough to those who are enjoying that activity. Another key to increasing interest is to interpret a number of subjects, including flora, fauna and history. However, many of those topics can and should be interpreted from the perspective of the Ice Age Floods, thus reinforcing the concept that the floods had significant impact on the biotic components of the ecosystem, including humans through the ages. Information should include the following:

- A map with stops and restricted lands and waters highlighted;
- Times required for specific water tours;
- Suggested stops and itineraries;
- Potential hazards;
- What to take along;
- Associated opportunities that might be of interest;
- Contact information ;
- Interpretation of key features.

The Boater's Guide should be organized so it is easy for a user to find information associated with a particular lake or part of the lake that he or she is in.

Interpretive Trail:

The existing interpretive trail at the south end of the Day Use Area could be modified to include stops that provide interpretation on different aspects of the Ice Age Floods. Since the trail focuses primarily on plants, one approach is to focus on the impact of the Ice Age Floods on the substrate for the vegetation.

Note: We are not suggesting an interpretive trail dedicated to the Ice Age Floods; we are simply suggesting the existing trail be re-developed and upgraded, and in the process, modified to include interpretation on this subject.

Priority for Implementation

Phase 1

- Develop the interpretive panel cluster.

Phase 2

- Develop the short trips booklet.

Eastern Region

Riverside State Park

Overview

This park occupies high areas that provide a good view of the pathway of the floods on their way through the Spokane area. The most compelling feature along the route is the Bowl and Pitcher in the Spokane River. The feature is a result of basalt flows covering the area on top of the Latah Formation. The Ice Age Floods eroded the Latah Formation to undercut the basalt, causing huge chunks of the rock to fall into the river valley. Basalt cliffs prominently displaying columnar basalt provide the opportunity for interpreting the basalt flows that set the stage for sculpting by the Ice Age Floods, and then the role of the floods in shearing off the basalt to create the cliffs. The park receives over 3 million visitors a year, but most are Day Users and repeat visitors. Riverside does not have easy access to and from I-90.

Status

Riverside State Park will be a secondary story point and primary starting point.

Recommended Changes to Layout and Infrastructure

None recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel – Day Use Area

Location

In the Day Use Area at the end of the walking bridge.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods helped sculpt the landscape in Riverside State Park;

- Know that it was a combination of geomorphologic events, including the Ice Age Floods, which formed the Bowl and Pitcher.

Description and Concept

The following panel is recommended:

Panel 1:

This is a site-specific panel focusing on the geomorphologic formation of the area, including the basalt flows flowing in and through an older less stable Latah Formation, and how the Ice Age Floods then impacted the area. One possible design concept is to use a series of visuals to build the present-day picture. The first would be of the basalt flows, followed by the laying down of the Latah Formation, followed by more basalt flows, some of which flow in and through the underlying formation. The next would be the Ice Age Floods eroding the underlying Latah Formation and undercutting the basalt blocks, causing them to tumble into the valley floor. The final visual would be of the scene today, with arrows indicating the probable source of the blocks in the river. A sidebar would contain a brief overview of the Ice Age Floods story to provide context for the site-specific story. Also, a brochure holder would distribute the Regional Ice Age Floods Orientation Map/ Brochure.

Note: The Ice Age Floods Height Finder would be associated with this panel.

Interpretive Panel Cluster – Bowl and Pitcher Overlook

Location

In the Bowl and Pitcher Overlook near the parking area.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods helped sculpt the landscape in Riverside State Park and changed the course of the Spokane River;
- Know that it was a combination of geomorphologic events, including the Ice Age Floods, which formed the Bowl and Pitcher.

Description and Concept

The following panels are recommended:

Panel 1:

This is a site-specific panel focusing on the geomorphologic formation of the area, including the basalt flows flowing in and through an older less stable Latah Formation, and how the Ice Age Floods then shaped the area. The design concept is the essentially the same as the one in the Day Use Area, but the images should reflect the view from this perspective. A sidebar would contain a brief overview of the Ice Age Floods story to provide context for the site-specific story. Also, a brochure holder would distribute the Regional Ice Age Floods Orientation Map/Brochure.

Panel 2:

This is a site-specific panel focusing on the impact of the floods in changing the course of the Spokane River. One possible design concept is to use a series of images from this perspective. The first would depict the area prior to the floods – including the old course of the river; the next would depict the area as it might have looked just after the ice dam broke and water was rushing across the landscape toward this point (text should ask the visitor to imagine the sight, sound and feel as the ground shook); the next image would depict the area inundated with transparent flood waters (include the park for perspective); and the final image would be of the new course of the river with evidence of the floods highlighted and described.

Panel 3 (optional):

Since the previous panel depicted the area being inundated by a mass of rushing water, and because the view contains a lot of evidence of human activity, it seems as if this might be a good place to put a panel that focuses on the impact of the floods on the biotic component of the landscape. One possible design concept is to link characteristics of the scene in front of the viewer with

impacts by the Ice Age Floods. Those could include flora, fauna and human activities. It could also include the role of the floods in supplying water to the regional water aquifer and the impact of that on human activity.

Note: The Ice Age Floods Height Finder would be associated with these panels.

Interpretive Panel – Bowl and Pitcher

Location

Near the feature along the trail from the lower parking area.

Key Objectives

After interacting with these panels, visitors will:

- Know the origin of the Bowl and Pitcher.

Description and Concept

The following panel is recommended:

Panel 1:

This panel provides a condensed version of how the feature was formed and directs people to the other interpretive panels for more information. One possible design concept is to show the rock sliding down the canyon wall as a result of flood waters undercutting the material beneath the rocks. Pull-out visuals could highlight the Latah formation and the columnar basalt. Supporting text would describe the sequence of events that resulted in the feature as we see it today.

Note: The reason it focuses on the feature and does not provide as much detail is that it is down near the valley floor, without a good view of the surrounding landscape.

Distribution Center

Description and Concept

A small visitor information station is located along the access road to the campgrounds and Day Use Area. The facility currently distributes maps and brochures. It should also include selected literature, videos, DVDs, auto tour guides and any other such interpretive strategies about the Ice Age Floods. Ideally, the area of the sales area with these items could be demarcated to indicate that the items are related to the Ice Age Floods.

Because of limited space, it is important to give priority to those guides and auto tours that encompass the immediate area. Note also that it is critical that the person who staffs the visitor center be aware of additional interpretive opportunities in the area that relate to the Ice Age Floods.

Interpretive Talks

Key Objectives

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Riverside, visitors will:

- Know that the floods helped sculpt the landscape in Riverside State Park and changed the course of the Spokane River;
- Know that the floods had significant impact on the flora, fauna and subsequent human activity in the area;
- Know that it was a combination of geomorphologic events, including the Ice Age Floods, which formed the bowl and pitcher.

Description and Concept

Within the array of programs offered should be presentations on the Ice Age Floods with emphasis on how the floods impacted the Spokane area. Given the location, presentations could always begin by trying to have the participants imagine a wall of water rushing towards them across the landscape. Ideally a Regional Ice Age Floods Orientation Map/Brochure would be distributed at the end of the program. In addition to presentations in the amphitheater, the vistas in parts of the park, notably the Bowl and Pitcher overlook, are excellent locations for giving an interpretive talk on the Ice Age Floods because the view contains a variety of features that can be used to tell part of the story. If a site in the Bowl and Pitcher area was adopted as a regular location for interpretive talks, consideration should be given to developing a set of benches where people can sit while attending a talk.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Explorers Guide to Riverside State Park:

As with several other parks, interpretive opportunities could be developed that interpret a number of stories, including the Ice Age Floods. Riverside State Park is very large and heavily used, with a wide variety of interpretive and recreational opportunities. It has an extensive trail system (including part of the Centennial Trail), Day Use areas, camping areas, the Spokane House Interpretive Center, and equestrian areas. A map of the site currently exists, but it has no interpretive information. A booklet with orientation and interpretive information could be effective in facilitating a good visitor experience while exposing visitors to the story of the Ice Age Floods.

Priority for Implementation

Phase 1

- Develop personal interpretive strategies.
- Develop the interpretive panel for the Day Use Area.
- Stock the Distribution Center.
- Develop the panel for the Bowl and Pitcher.

Phase 2

- Develop the interpretive panel cluster for the Bowl and Pitcher Overlook area.

Phase 3

- Develop the seating area in the Bowl and Pitcher Overlook area.

Eastern Region

Centennial Trail

Note: Centennial Trail is grouped with Riverside State Park because the park contains one terminus and a significant part of the trail and because it is administered from that location.

Overview

This is a 39-mile trail from the Spokane River in Riverside State Park to the Idaho border. Sections of the trail make use of existing roadways. Some of the other parts of the trail are paved and some not. Users include cyclists, runners, hikers, walkers, skateboarders, equestrians and roller-bladers. Most are residents of the area. For much of the length, the trail contains places where users can stop and rest, such as the benches in Riverside State Park and the benches in Riverfront Park in Spokane. This creates the opportunity to provide interpretive information at sites where someone using the trail is likely to stop and rest or just take in the view. The trail also has numerous trailheads. Similar to the Columbia Plateau Trail, the Centennial Trail passes through areas impacted by the Ice Age Floods, including the Spokane Valley and Rathdrum Prairie where the floods deposited gravels as the water slowed in the broad valleys.

Status

Centennial Trail is a secondary story point and a secondary starting point.

Recommended Changes to Layout and Infrastructure

None recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel Cluster

Location

This set of panels will be located in an overlook near the bridge in Riverfront Park. This site is managed by the City of Spokane, but an MOU could allow this interpretive strategy to be developed.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods were a key force in forming the landscape through which the trail passes;
- Know that a variety of evidence can be found along the trail;
- Be inspired to visit other sites with Ice Age Floods interpretive opportunities.

Description and Concept

The following panels are recommended:

**Panel 1:*

This is the Ice Age Floods Thematic Overview Panel to provide context for the site-specific story. Design concept is included in the general strategies section. The Ice Age Floods Height Finder would be associated with this panel.

**Panel 2:*

This is the Regional Ice Age Floods Orientation Panel. Design concept is included in the general strategies section.

Panel 3:

This is a site-specific panel that focuses on the visible impacts of the floods from this site and in the immediate area. One possible design concept is to use a bird's-eye perspective of the landscape through which the

trail passes, with a transparent 'flood' covering it, as a backdrop for enlarged images of different features formed by the floods that can be seen in the Spokane area, especially those that can be seen from the trail.

Panel 4: Going East - Going West

This panel focuses on the features that can be seen east or west along the trail. One possible design concept is to divide the panel in two with one side labeled "Going East?" and the other side labeled "Going West?" The image on each side would be a stylized bird's-eye perspective of the section of trail in that direction as a backdrop for enlarged images of different features related to the Ice Age Floods that can be seen along the way. Supporting text would identify the feature and explain how it was formed. The panel will also let the visitor know about the user's guide to the trail.

Note: Going East - Going West panels can be installed in other locations along the trail as well, but ideally they would be in locations with a lot of visitation/access by users. The advantage to this site is the turnover of visitors.

*In general, the Ice Age Floods Thematic Overview Panel and Regional Ice Age Floods Orientation Panel are only used at primary story sites. However, this was considered a good opportunity for more detailed information than a single panel or two due to the high visitation at this park combined with the fact that it is not in a State Park.

Guided Ice Age Floods Bicycle Tours

Key Objectives

Specific objectives would depend on the actual tour route, but all guided tours should achieve the general objectives identified in the introduction. In addition, after participating in a bicycle tour along the Centennial Trail, visitors will:

- Know that the floods were a key force in forming the landscape through which the trail passes;
- Know that a variety of evidence can be found along the trail;
- Know that the Ice Age Floods had and continues to have impact on flora, fauna and human activity in the area;

- Be inspired to purchase the trail guide to Centennial Trail.

Description and Concept

These tours provide interpretation focusing on the Ice Age Floods and related geomorphologic events and resulting features, and also on the impact of the floods on flora, fauna and human activity.

Guided Ice Age Floods Equestrian Tours

Key Objectives

Specific objectives would depend on the actual tour route, but all guided tours should achieve the general objectives identified in the introduction. In addition, after participating in an equestrian tour along the Centennial Trail, visitors will:

- Know that the floods were a key force in forming the landscape through which the trail passes;
- Know that the a variety of evidence can be found along the trail;
- Know that the Ice Age Floods had and continues to have impact on flora, fauna and human activity in the area;
- Be inspired to purchase the trail guide to Centennial Trail.

Description and Concept

These tours provide interpretation focusing on the Ice Age Floods and related geomorphologic events and resulting features, and also on the impact of the floods on flora, fauna and human activity.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Centennial Trail Guide Booklet:

This would not focus entirely on the Ice Age Floods, but would be a complete orientation and interpretive guidebook to the trail. The interpretive information would focus on the viewsheds at benches and other logical resting areas or stopping places along the route.

Priority for Implementation

Phase 1

- Develop the interpretive panel cluster.
- Develop the guided tours along the trail.

Phase 2

- Develop the guidebook for the trail.

Eastern Region

Sacajawea State Park

Overview

This is the closest WSPRC property to Wallula Gap, which was the bottleneck that caused a temporary lake (Glacial Lake Lewis) to form over the Pasco Basin. However, the Gap cannot be seen from this site. The rounded hills in the viewshed would have been islands in the floods, so the height of the flood and its tremendous depth of water can be pointed out from the site. The park is at the confluence of the Snake and Columbia rivers, and is likely sitting on top of bedload deposited by the Ice Age Floods, overlain by later sediment deposited by the two rivers.

Status

Sacajawea is a secondary story point and a secondary starting point.

Recommended Changes to Layout and Infrastructure

None recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel Cluster - Day Use Area

Location

These panels would be effective in a variety of locations. Key criteria for the location include ADA access, clear view of the Horse Heaven Hills to the south, and clear view of the confluence of the Columbia and Snake Rivers. Although it is difficult to pick out Wallula Gap from Sacajawea, we want the viewer to see the barrier of hills that exists to the south and west that would have funneled the flood waters to Wallula Gap.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that Wallula Gap caused water to

back up and form a temporary lake that covered this area and backed water up the Snake River as far as Lewiston;

- Be inspired to take the auto tour to Palouse Falls;
- Know that they are standing on material deposited by the flood waters.

Description and Concept

The following panels are recommended:

Panel 1:

This is a site-specific panel focusing on Wallula Gap and the impact on the surrounding area, including the fact that water flowed up the Snake and Walla Walla River valleys and deposited bedload. One possible design concept is to use a stylized perspective of an aerial view of this part of Washington to depict the extent of Glacial Lake Lewis during the height of a flood episode. Another visual would show the areas in which deposition occurred as a result. A sidebar could include a visual of a cross-section of the ground underneath the person's feet showing the extent of deposits by the Ice Age Floods, with different layers representing different flood episodes. Supporting text would focus on the role of the Horse Heaven Hills and Wallula Gap in causing the lake to form, and the resulting impact on the surrounding area. A sidebar would contain a brief overview of the Ice Age Floods story to provide context for the site-specific story. Also, a brochure holder would distribute the Regional Ice Age Floods Orientation Map/Brochure.

Panel 2:

Because the interpretation at the park focuses heavily on cultural history, this would be a good place to put a panel that focuses on the impact of the floods on the biotic component of the landscape, specifically on human activity. One possible design concept is to use a bird's-eye stylized perspective image of the area as a backdrop for highlighting human activities that were affected in some way by the floods. This could include

the formation of flat areas near the water for camp sites, deposits of gravel that were used for construction material, the presence of flora and fauna that were hunted, fished for or gathered, and travel routes formed in part by the floods.

Note: The Ice Age Floods Height Finder would be associated with these panels.

Interior Overview Exhibit (optional)

Location

In the existing interpretive center.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Be interested in taking the loop tour that encompasses Palouse Falls State Park;
- Know that Native American lifestyles were affected by the Ice Age Floods;
- Know that the surrounding area had lots of interesting features associated with the Ice Age Floods.

Description and Concept

This exhibit focuses primarily on making people aware of the surrounding Ice Age Floods interpretive opportunities rather than trying to interpret the story, and motivating people to purchase non-fixed strategies such as auto tours and publications for exploring and discovering floods features. One possible design concept is to use an approach similar to the Regional Ice Age Floods Orientation Panel – a bird’s-eye stylized perspective view of the surrounding area as a backdrop for highlighting interpretive opportunities associated with the Ice Age Floods. This would include Palouse Falls, Lyons Ferry, the loop auto tour encompassing those sites, ‘The Reach’ interpretive center, Drumheller Channels and other such opportunities. If interpretation were included it should focus on depicting Native American activities associated with landscape features affected by the Ice Age Floods. Supporting text would focus on how the floods affected cultural activities.

Note: This exhibit could be the backdrop for a sales area featuring information about the Ice Age Floods.

Distribution Center

Description and Concept

The existing interpretive center should have a section for distributing selected literature, videos, DVDs, auto tour guides and any other such interpretive strategies about the Ice Age Floods. Ideally, the sales area containing Ice Age Floods items would be demarcated in some way so visitors would clearly know that the items in the area were associated with the Ice Age Floods. Because of limited space, it is important to give priority to those guides and auto tours that encompass the immediate area. Note also that it is critical that the person who staffs the visitor center be aware of additional interpretive opportunities in the area that relate to the Ice Age Floods.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Personal Interpretation/Programs:

The park currently offers guided tours of a traditional Wanapum native village that has been re-created at Sacajawea State Park by the Wanapum Band of Native Americans, Grant County PUD and the Wanapum Heritage Center. If possible, Native American accounts of great floods should be included within the tour along with directions as to where to get more information on the Ice Age Floods.

Sacagawea Heritage Trail Tour Guide:

This publication would be an orientation and interpretive guide to the Sacagawea Heritage Trail, a regional bike trail that connects Pasco, Kennewick and Richland. It would include overview interpretation of a variety of stories, keyed to locations where bikers are likely to stop and rest. The guide would need to be a collaborative effort between a variety of jurisdictions and agencies.

*Boater's Guide to the Columbia
and Snake Rivers:*

This would be an orientation and interpretive guide to the Columbia and Snake Rivers for those taking tour boats. It could be prepared in sections so only the section appropriate to this stretch of river would be distributed here, but the entire book could be available for people taking cruises up the river.

Priority for Implementation

Phase 1

- Develop the interpretive panel cluster.
- Integrate interpretive information about the Ice Age Floods in existing programs.
- Stock the Distribution Center.

Phase 2

- Develop the interior exhibit.

Eastern Region

Steamboat Rock State Park

Overview

The rock is an erosional remnant and at one time would have separated two cataracts of a waterfall in the upper coulee. The top of Steamboat Rock exhibits evidence of a variety of different geomorphologic events. It is formed by basalt flows, has glacial erratics and moraines from the ice sheet, and a coulee from the Ice Age Floods. With the height of the rock and breadth of the coulee, the amount of sediment gouged out by the waters can be interpreted. Also, the contrast between the granitic rock upstream and the basalt cliffs is a good opportunity to focus on the role the basalt played in creating the features evident today. This is also the point where Ice Age Flood waters came into the coulee from Northrup Canyon. The variety of features in Northrup Canyon creates an opportunity to focus on the erosional and depositional impacts of the flood waters.

Status

Steamboat Rock is a primary story point and a primary starting point.

Recommended Changes to Layout and Infrastructure

The park needs an amphitheater. Plans currently call for one to be located in the Day Use Area. A walking/interpretive trail connecting the two campgrounds and the amphitheater/Day Use Area is recommended.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel Cluster – Day Use Area

Location

In the Day Use Area oriented to the view upriver, with good visual access to the granite outcroppings northeast of Steamboat Rock and to views to the north.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the Grand Coulee and Steamboat Rock were sculpted by the Ice Age Floods;
- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods;
- Know that the underlying rock – basalt or granite – had significant impact on the ability of the flood water to erode, and on the shape of the features that resulted;
- Be inspired to take a hike in Northrup Canyon.

Description and Concept

The following panels are recommended:

Panel 1:

This is the Ice Age Floods Thematic Overview Panel to provide context for the site-specific story. Design concept is included in the general strategies section. The Ice Age Floods Height Finder would be associated with this panel.

Panel 2:

This is the Regional Ice Age Floods Orientation Panel. Design concept is included in the general strategies section.

Panel 3:

This is a site-specific interpretive panel focusing on the formation of the upper Grand Coulee in general and Steamboat Rock specifically. One possible design concept is to use a visual to depict the area at different points in time using Steamboat Rock as a focal point. The visuals would include one of the area prior to the floods – as a plateau; another would depict the area covered by the ice sheet with information on the resulting features on top of Steamboat Rock; another would be the flood waters sculpting the coulee, but also forming features on top of Steamboat Rock; and another would be the scene today, highlighting features associ-

ated with the Ice Age Floods with supporting text identifying each feature. The latter would include the gravel bar downstream of the rock.

Panel 4:

This panel would focus on how the resulting features affected the way humans have used the area over time (geo-determinism). This would include a focus on the use of the coulee as a travel route. One possible design concept is to use a bird's-eye stylized perspective of the area as a backdrop to highlight human activities throughout time, including travel by foot, by water and by auto; and hunting and fishing for subsistence and pleasure. A sidebar could focus on why the lake exists today.

Interpretive Talks (Evening Programs)

Key Objectives

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Steamboat Rock, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area, including sculpting the Grand Coulee and Steamboat Rock;
- Know that the ice sheet played a key role in determining the pathway of the flood waters;
- Know that the underlying rock – basalt or granite – had significant impact on the ability of the flood water to erode, and on the shape of the features that resulted.

Description and Concept

Within the array of evening programs offered should be presentations on the Ice Age Floods with emphasis on how the floods sculpted Steamboat Rock, the Grand Coulee and Northrup Canyon, and the resulting impact on human activity from the time of the floods until present. Ideally the Regional Ice Age Floods Orientation Map/Brochure would be distributed at the end of the program.

Interpretive Talks

Location

These talks could be offered in several places, including the Day Use Area. In the development plan, one of the first phases could be to develop a place with benches in the area just north of the Day Use Area, with a good view up the coulee and to the mouth of Northrup Canyon, where someone could give talks.

Key Objectives

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Steamboat Rock, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area, including sculpting the Grand Coulee and Steamboat Rock;
- Know that the ice sheet played a key role in determining the pathway of the flood waters;
- Know that the underlying rock – basalt or granite – had significant impact on the ability of the flood water to erode, and on the shape of the features that resulted.

Ice Age Floods Interpretive Trail

Location

This is located in Northrup Canyon Natural Area. The beginning of the trail should be near the parking area but located at a point that it can function as an interpretive viewpoint.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Understand how granite and basalt eroded differently under the force of the flood waters;
- Know that Northrup Canyon was sculpted by the flood waters;
- Know that the ice sheet played a significant role in determining the route of the flood waters;
- Know that the area contains spectacular features and sites associated with the Ice Age Floods;

- Know that the impact of the floods on Northrup Canyon had impact on subsequent human activity of the area.

Description and Concept

Interpretation along the trail focuses on the role of granite, basalt and the Ice Age Floods in forming the landscape, and the subsequent effect on flora, fauna and human activity. The interpretation along the trail could be delivered by signage or by a brochure keyed to features. The following are design concepts for the introductory panels:

Panel 1:

This is a thematic overview of the impact of the floods on the biotic components of the ecosystem from the time of the floods forward. One possible design concept is to use the scene up Northrup Canyon as a backdrop to highlight impacts on the landscape coupled with use of the new landscape by specific biotic components of the ecosystem. Supporting text would highlight the connections.

Panel 2:

This is a trail orientation panel. One possible design concept is to use a stylized, bird's-eye perspective of the trail as a backdrop for highlighting the stops and the features at those stops. Supporting text would focus on difficulty, length and time required. A brochure holder would dispense the trail brochure.

Ice Age Floods Guided Walks

Location

Walks can take place in many areas, including up to the top of Steamboat Rock and up Northrup Canyon.

Key Objectives

Specific objectives would depend on the actual route, but all guided walks should achieve the general objectives identified in the introduction. In addition, after participating in a guided walk in Steamboat, visitors will:

- Know that the underlying rock – basalt or granite – had significant impact on the ability of the flood water to erode, and on the shape of the features that resulted.

Ice Age Floods Trips from Steamboat

Description and Concept

Steamboat Rock is one of the few parks where it does not matter which road a person takes to leave the park, he or she will pass by significant features related to the Ice Age Floods. Therefore, a small booklet highlighting short trips of discovery from the park could be developed. Trips should include Crown Point State Heritage Area, Lake Lenore Caves, Northrup Canyon Natural Area, Dry Falls Interpretive Center and Sun Lakes-Dry Falls State Park. On all trips, features and landscapes will be interpreted in relation to the Ice Age Floods.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Boaters Guide to the Upper and Lower Coulee Lakes:

This would be a complete orientation and interpretive guide from the perspective of people boating on the coulee lakes. Interpretation would include features related to the Ice Age Floods as well as those related to other geomorphologic events. It would also interpret flora, fauna and cultural history.

Hiker's Guide to Steamboat Rock State Park:

This guidebook would include the hike to the top of Steamboat Rock, the trail up Northrup Canyon, and all the walking trails in the park. Interpretation would focus on a variety of stories, including the Ice Age Floods. It will be important that the interpretive information be integrated into the activity of hiking. For example, interpretation can be associated with viewpoints and areas where hikers are likely to rest.

Interpretive Trail – Campgrounds:

This loop trail would be in the area between the two campgrounds. The focus would be on the key geomorphologic events and forces that heavily influenced the way the area looks today, and the subsequent impact on flora, fauna and human use. The Ice Age

Floods would be one focus of the interpretation. The granite and basalt flows would also be interpreted from the viewpoint of the role they played in conjunction with the flood waters in forming the landscape. Ideally, the trail would be easily accessible from both campgrounds, and the amphitheater would be located in the center of the loop.

Priority for Implementation

Phase 1

- Develop the interpretive panel cluster.
- Develop interpretive talks and walks.
- Develop the amphitheater.

Phase 2

- Develop the interpretive trail in Northrup Canyon.

Phase 3

- Develop the interpretive trail in the campground area.

Eastern Region

Sun Lakes-Dry Falls State Park

Overview

This site, at the head of the lower Grand Coulee, is within one of the major features created by the Ice Age Floods. From this place, a visitor has spectacular views of the surrounding columnar basalt that comprises the coulee walls. This view also provides a good perspective for understanding the amount of material eroded away by the floods. The site also has access to a number of significant Ice Age Floods features, including the base of Dry Falls and excellent examples of 'potholes.' Finally, because of the combination of a resort, a campground, Camp Delaney and the Day Use Area, Sun Lakes can have over 1000 people at any given time in the park.

Status

Sun Lakes is a primary story point and a primary starting point.

Recommended Changes to Layout and Infrastructure

This park needs an amphitheater as soon as possible. With the number of overnight sites and the occupancy levels, there is a high potential to reach a lot of people with evening programs and stimulate them to begin an Ice Age Floods interpretive experience.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panels Cluster - Day Use Area

Location

These panels will be located initially at a site just to the east of the marina so people will see the opportunity when they visit the marina or the store. When the new marina facility is completed, the panels will be moved to a deck at the back of the facility.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the Grand Coulee was sculpted by the Ice Age Floods;
- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods;
- Be inspired to visit Dry Falls Interpretive Center and Lake Lenore Caves;
- Know that their recreational opportunity - whether boating, camping, or hiking in the Grand Coulee - was due in part to the floods.

Description and Concept

The following panels are recommended:

Panel 1:

This is the Ice Age Floods Thematic Overview Panel to provide context for the site-specific story. Design concept is included in the general strategies section. The Ice Age Floods Height Finder would be associated with this panel.

Panel 2:

This is the Regional Ice Age Floods Orientation Panel. Design concept is included in the general strategies section.

Panel 3:

This is a site-specific interpretive panel focusing on the formation of the lower Grand Coulee in general and the area of the park specifically. One possible design concept is to use a visual to depict this area at different points in time. The first would be a visual of the area prior to the floods - as a plateau. The next would be the flood waters sculpting the coulee. A visual depicting the process of erosion through transparent flood waters should be considered. The final visual would be the scene today, highlighting features associated with the Ice Age Floods with supporting text identifying each feature.

Panel 4:

This panel focuses on how the impacts to the landscape affected the way humans have used the area over time (geo-determinism). This would include a focus on the use of the coulee as a travel route. One possible design concept is to use a bird's-eye stylized perspective of the area as a backdrop to highlight human activities throughout time, including travel by foot, water and by auto; hunting and fishing for subsistence and pleasure; camping; and boating. The use of Lake Lenore Caves as a shelter should be included along with information indicating that the site can be visited.

Interpretive Talks (Evening Programs)**Key Objectives**

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Sun Lakes, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area;
- Know that the Grand Coulee was sculpted by flood waters because the ice sheet blocked the ancestral route of the Columbia;
- Know that Dry Falls was a receding waterfall;

Description and Concept

Within the array of evening programs offered should be presentations on the Ice Age Floods with emphasis on how the floods sculpted the Dry Falls and the Grand Coulee, and the impacts on flora, fauna and human activities. Ideally the Regional Ice Age Floods Orientation Map/Brochure would be distributed at the end of the program.

Interpretive Talks (Other)***Location***

These could take place anywhere that key features are visible and listeners can be comfortable (in the shade at least and sitting down if possible). One possibility is to create places around the campground and Day Use Area that can be used as gathering/presentation spots when a talk is being given, and contemplation areas when not. Such areas would have a number of benches. One such

location would be a high point along the proposed interpretive trail.

Key Objectives

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Sun Lakes, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area;
- Know that the Grand Coulee was sculpted by flood waters because the ice sheet blocked the ancestral route of the Columbia;
- Know that Dry Falls was a receding waterfall and how such a feature is formed;

Ice Age Floods Interpretive Trail***Location***

This trail would be located on the low hill running along the east side of the camping area. The high ground is perfect for views of the coulee walls, and views up and down the coulee.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area;
- Be able to name at least 3 species of plants and/or wildlife that were affected by the floods;
- Know that basalt flows were a key to the formation of the coulee walls.

Description and Concept

The trail would use a variety of features to tell the story of the basalt flows and Ice Age Floods and the impact they had on flora, fauna and human use of the area. The trailhead would contain an interpretive panel cluster that would include a thematic overview panel, a panel providing an overview of the formation of the coulee and a trail orientation panel. The interpretation along the trail could be delivered by signage or by a brochure keyed to features. The following are design concepts for the introductory panels:

Panel 1:

This is the Ice Age Floods Thematic Overview Panel to provide context for the site-specific story. Design concept is included in the general strategies section. The Ice Age Floods Height Finder would be associated with this panel.

Panel 2:

This is a thematic overview of the impact of the floods on biotic components of the environment from the time of the floods forward. One possible design concept is to use the scene in front of the panel as a backdrop to highlight impacts on the landscape coupled with use of the new landscape by a biotic component of the ecosystem with emphasis on the connections. For example, the flat floor of the coulee would be shown as a place to travel and build homes; the columnar basalt cliffs would be highlighted as perfect habitat for raptors and other wildlife; and the lakes would be highlighted as habitat for fish and waterfowl.

Panel 3:

This is a trail orientation panel. One possible design concept is to use a stylized, bird's-eye perspective of the trail as a backdrop for highlighting the stops and the features at those stops. Supporting text would focus on difficulty, length and time required. A brochure holder would dispense the interpretive brochure for the trail.

Ice Age Floods Guided Walks**Location**

Walks can take place in many areas, including south along the road on the east side of the lake and along the low ridge where the interpretive trail is going to be located.

Key Objectives

Specific objectives would depend on the actual route, but all guided walks should achieve the general objectives identified in the introduction. In addition, after participating in a guided walk in Sun Lakes, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area;
- Know that the basalt flows were a key factor in forming the coulee walls as we see them today.

Ice Age Floods on foot and by auto from Sun Lakes-Dry Falls State Park***Description and Concept***

Sun Lakes is one of the few parks where it does not matter which road a person takes to leave the park, he or she will pass by significant features related to the Ice Age Floods. Therefore, a small booklet highlighting short trips of discovery from the park could be developed for use by those staying overnight. Trips should include Crown Point State Heritage Area, Lake Lenore Caves, Northrup Canyon Natural Area, Dry Falls Interpretive Center, the Ephrata Fan south of Soap Lake, the base of Dry Falls, and Steamboat Rock. In addition, there are a lot of hiking opportunities at Sun Lakes that access areas with Ice Age Floods features. There are a number of trails going north into several alcoves to the base of Dry Falls. Another spectacular feature is a tight cluster of the deep potholes beyond Sun Lakes just west of Deep Lake. These potholes lie along the valley bottom and require only a 5-10 minute walk from the road.

On all trips, features and landscapes will be interpreted in relation to the Ice Age Floods.

Distribution Center***Description and Concept***

The new marina facility that will be built near the existing marina will have a space that can be used to distribute key interpretive literature. Auto tour guides, guidebooks and any other such interpretive strategies about the Ice Age Floods should be considered, with priority given to those about Sun Lakes.

Guided Ice Age Floods Tours***Description and Concept***

Guided tours could be based from the park or from Camp Delaney. Routes would depend on the length of time, but several possibilities exist for long loop tours encompassing the entire Grand Coulee, Crown Point State Heritage Area and other nearby sites with features associated with the floods.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Boaters Guide to the Upper and Lower Coulee Lakes:

This would be a complete orientation and interpretive guide from the perspective of people on the coulee lakes. Interpretation would include features related to the Ice Age Floods as well as those related to other geomorphologic events. It would also interpret flora, fauna and cultural history.

Priority for Implementation

Phase 1

- Develop the interpretive panel cluster.
- Develop interpretive talks and walks.

Phase 2

- Develop the interpretive trail and associated interpretive panels.

Phase 3

- Develop the Ice Age Floods Short Trips booklet.
- Develop seating to give talks.

Note: The Distribution Center should be established as soon as the new marina facility is built.

Eastern Region

Dry Falls Interpretive Center

Note: Dry Falls is grouped with Sun Lakes-Dry Falls State Park because they are administered together.

Overview

Dry Falls is perhaps the most significant and spectacular site in terms of the Ice Age Floods. If water were running over this cataract, it would be 10 times the size of Niagara Falls. The features create good opportunities to tell a wide variety of stories associated with the floods. For example, the dry falls create the opportunity for interpreting a receding waterfall; the basalt cliffs create the opportunity to tell the story of the role of basalt in forming the features associated with the Ice Age Floods; the breadth and depth of the coulee at this point also creates a good opportunity to focus on the amount of material removed by the floods; and the presence of the Grand Coulee, a topographic feature created by the Ice Age Floods, creates the opportunity to focus on the impact of the floods in altering the landscape and influencing how people use the land.

Status

Dry Falls Interpretive Center is a primary story point and primary starting point.

Recommended Changes to Layout and Infrastructure

In addition to an increase in the array of interpretive opportunities at Dry Falls, significant modifications to the layout and infrastructure would enhance the visitor experience at this site. We recommend the following changes:

New viewpoint:

Develop a new interpretive viewpoint on a point on the rim of the coulee about 200 yards south of the existing interpretive center (see Figure 10).

Interpretive Trail:

Construct a fully accessible interpretive trail from the existing parking area to the new viewpoint. Interpretation along the trail is described in the section on interpretive strategies.

Re-develop existing parking area:

Consider pulling the parking back from the rim, replace with lawn, and develop a walking trail along the edge. Develop a shaded seating area on what is now the island in the parking area for giving interpretive talks. Develop additional parking along the highway to the south of the entrance. Design should use existing topography and vegetative screening to minimize visual access to parking area from park.

New Interpretive Center:

Consider developing a new interpretive center and removing the existing facility.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panels Cluster

Location

This cluster of panels will be located at this time in an area of the parking lot adjacent to the historical kiosk. If and when the parking area is pulled back from the edge, this interpretive panel cluster would be on the walkway along the edge.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that Dry Falls and the Grand Coulee were sculpted by the Ice Age Floods;
- Know that the Ice Age Floods had significant impact on the flora, fauna and human activities in this area;
- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods.

Description and Concept

The following panels are recommended:

Panel 1:

This is the Ice Age Floods Thematic Overview Panel to provide context for the site-specific story. Design concept is included in the general strategies section. The Ice Age Floods Height Finder would be associated with this panel.

Panel 2:

This is the Regional Ice Age Floods Orientation Panel. Design concept is included in the general strategies section.

Panel 3:

This is a site-specific panel focusing on how the flood waters formed dry falls. One possible design concept is to use an introductory visual and text block to explain the role of the Okanogan lobe in blocking the route of the flood waters after the first few flood events, with the result that water poured over the plateau. The main focus of the panel would be a cross-section of the Grand Coulee during a flood event, with a focus on the height of the flood waters, how a receding gorge is formed by a waterfall, and the shaping of the area over time. One possibility is to use a series of ghost images showing the plateau and gorge over time, from where the lower Grand Coulee started until today. The visitor center and people in the parking area should also appear as ghost images to convey the magnitude of the flood. A diagram could be used to highlight how columnar basalt is eroded by flood waters.

Panel 4:

This panel focuses on raptors and other wildlife or wildlife sign (such as the white stain of uric acid from rodents) that visitors are likely to see from the viewpoint. The information on the panel focuses on the role of the floods in creating habitat for flora and fauna. One possible design concept is to use the image in front of the person as a backdrop for pull-out images of different plants and wildlife that now inhabit the area. For example, images could include raptors and bats nesting in the cliff face and species of plants both on the plateau and in the coulee. The intent is to highlight impact of the

floods on biotic components of the ecosystem, so species should be chosen that would not necessarily have been there without the formation of the Grand Coulee and/or the erosive effect of the flood waters.

Interpretive Panel Cluster**Location**

This cluster of panels will be located at a new overlook to the south of the center. The overlook will be accessed by an ADA accessible trail. An extension of the trail could access a contemplation area – no fixed interpretive strategies.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that Dry Falls and the Grand Coulee were sculpted by the Ice Age Floods;
- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods;
- Know that the Ice Age Floods moved a lot of material;
- Know that the Ice Age Floods affected the way humans interacted with the landscape in a variety of ways.

Description and Concept

The following panels are recommended:

Panel 1:

This panel focuses on the impacts of the floods in terms of deposition and erosion. For example, it could be a map with areas color coded to indicate deposition or erosion. Such a map would extend all the way into the Willamette Valley, and would also indicate the expanse of ocean floor significantly affected by the floods. The deposition/erosion designation could include unique shading for the areas in which a significant amount of material from the Grand Coulee was deposited.

Note: *It is important to make it clear that all of the material did not come from Grand Coulee and that most of the large material from the coulee ended up not too far from the mouth of the coulee.*

Panel 2:

This panel focuses on the impact of the floods on human activity, including forming new travel routes such as the Grand Coulee; influencing the potential for agriculture through deposition of sediment, erosion of soil and impact on water resources; and forming gravel deposits that are the site of recent or current mining activities. Quincy Basin should be a focal point of the interpretive panel because southbound travelers will likely be passing through that area.

Interpretive Talks**Location**

These could take place anywhere that key features are visible and listeners can be comfortable (in the shade at least and sitting down if possible). One possibility is to create a shaded place on the current island just west of the parking area with benches for people to sit.

Key Objectives

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Dry Falls, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area, especially the Grand Coulee and Dry Falls;
- Know that the Ice Age Floods had significant impact on the flora, fauna and human activities in this area;
- Know that the columnar basalt was a key factor in determining the resulting landscape.

Ice Age Floods Interpretive Trail**Location**

This trail accesses the proposed viewpoint south of the existing center.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods affected and continue to affect the flora, fauna and activities of humans in the area.

Description and Concept

This trail will focus on the impact of the floods on biota, such as vegetation, wildlife and humans. The interpretation along the trail could be delivered by signage or by a brochure keyed to features. Since the intent is to focus on impacts of the floods, species of flora and fauna that were not present prior to the floods should be highlighted.

Interior Exhibits***Description and Concept***

This is a new set of interior exhibits focusing on the Ice Age Floods story, the role of basalt flows, Bretz, and the impact of the floods on the biota that came afterwards. In other words, the whole story is told here. Specific exhibits could include the following:

The Advancement of Knowledge:

The human story of Bretz's struggle to have his theory of the Ice Age Floods accepted by the scientific community is both fascinating and instructive. First, it can communicate the importance of perseverance, especially in the field of scientific endeavor. Second, it can be used to communicate a classic process in the ongoing evolution of scientific knowledge. Although the story of J Harlen Bretz and his battle with the scientific world appears brutal, it is not atypical. It is an example of a classic Hegelian dialectic - someone has a thesis, someone posits an antithesis, and the two sides struggle until a synthesis is reached. This process has repeated itself throughout human history and continues today. In communicating that story, it sends the message that we may not have everything right and there are things left to discover, including new ways to look at old stories. This is a good message for children - our potential scientists of the future. One possible way to tell part of the story is to have the visitor 'listen in' on a debate between Bretz and a member of the scientific community. That could be supported by a scrapbook with replica newspaper headlines or other such items chronicling his struggle. Another possibility is to use a time line so people understand the length of time involved. Such a time line could include world events to establish context, and could also highlight work by others on the Ice Age Floods and advances in technology that

helped with the process.

Setting the Stage:

This exhibit focuses on the geomorphologic evolution of the area preceding the floods. The Columbia River basalt flows would be a part of the story.

The Ice Age Floods:

This is probably a series of exhibits focusing on the cause of the floods and the impacts in general and in this area specifically. It would also include an exhibit specifically about the formation of the Upper and Lower Grand Coulee and Dry Falls.

The Long Term Impacts:

This is a two-part exhibit with one part focusing on the impact on human activity throughout time in the coulee specifically, but also in other parts of the flood region. That part of the exhibit should include impacts on humans today, and should ask the visitor to think of one way the floods have affected his or her life. The other part of the exhibit would focus on the impact on flora and fauna, including emphasis on wildlife currently using the habitat created in part by the floods. This part of the exhibit could be a diorama similar to the one now in the interpretive center.

The story of the Ice Age Floods:

This is a DVD that is shown either a corner of the interpretive center or in a back area designed to show such programs. It would provide a complete overview of the event and its impact through time.

Distribution Center

Description and Concept

The interpretive center already sells items connected to the Ice Age Floods. It should continue to be a major part of the sales area.

Ice Age Floods Trips from Sun Lakes-Dry Falls State Park

Description and Concept

This booklet was already described in the media prescription for Sun Lakes.

Audio Listening Posts

Description and Concept

These provide a narrative, using a voice representing Bretz explaining the formation of Dry Falls. They can be located at the viewing windows and/or outside along the rock and chain barrier.

Priority for Implementation

Phase 1

- Develop the interpretive panel cluster in the existing parking lot.
- Develop interpretive talks.

Phase 2

- Develop the new viewpoint and interpretive panel cluster.

Phase 3

- Develop the interpretive trail.
- Develop a shaded seating area on what is now the island in the parking area for giving interpretive talks.

Other Phases

All other recommendations hinge on significant infrastructural changes. Ideally, we would like to see the following happen in the following order:

- Parking area pulled back from the rim, replaced with lawn, and a walking trail developed along the edge.
- Additional parking developed along the highway to the south of the entrance. Design should use existing topography and vegetative screening to minimize visual access to parking area from park.
- Develop a new interpretive center and remove existing facility.

Eastern Region

Lake Lenore Caves

Note: Lake Lenore Caves is grouped with Sun Lakes-Dry Falls State Park because they are administered together

Overview

Lake Lenore Caves are indentations at the base of basalt cliffs that were used by Native peoples for shelter and storage, thus it is an excellent place to focus on the story of the impact of the Ice Age Floods on subsequent use of the landscape by humans. The tilted rock surfaces in Lake Lenore, visible from this site, create the opportunity to focus on other forces that had impact on the geomorphology of the area, and on the influence of those forces on the pathway of the floods and erosion by the flood waters.

Note: Lake Lenore Caves were formed by the Ice Age Floods. However, there is disagreement amongst specialists reviewing the plan as to whether they were created by water plunging over the top of the coulee walls or whether it was erosion by water flowing past.

Status

Lake Lenore Caves is a secondary story site and does not really function as a starting point other than to send visitors to the Dry Falls Interpretive Center.

Recommended Changes to Layout and Infrastructure

In terms of interpreting the Ice Age Floods, no changes to the infrastructure are recommended.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panel Cluster

Location

These panels would be located in the level graded area at the north end of the up-

per parking area (this will eventually be the terminus of a Watchable Wildlife trail that begins at the lower parking area (see Figure 11) and currently ends at a point on the lakeshore).

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that the floods formed caves that were used by Native Americans for shelter;
- Know that other geomorphologic events influenced the Ice Age Floods.

Description and Concept

The following panels are recommended:

Panel 1:

This is a site-specific panel on the geomorphology of the area. In addition to covering erosion by the Ice Age Floods, the panel would use the tilted rocks in the lake to focus on the interrelationship of the Ice Age Floods with areas of weakness in the landscape caused by other geomorphologic forces. One possible design concept is to use diagrams or images depicting the geomorphologic evolution of the area over time. A sidebar would contain a brief overview of the Ice Age Floods story to provide context for the site-specific story. Also, a brochure holder would distribute the Regional Ice Age Floods Orientation Map/Brochure.

Panel 2:

This panel focuses on geo-determinism – the role of the landscape in influencing human use of the area. The major focus would be use of the caves for shelter. However, the story should be extended to the soil in the Quincy Basin that now supports agriculture, the impact of the floods on water resources in that area, and the continuous use of the coulee as a transportation corridor. This panel should include a note that the visitor can learn more by visiting Dry Falls Interpretive Center. One possible design concept is

to use a bird's eye perspective of the area as a backdrop for visuals highlighting human uses of the area, including using the caves for shelter, hunting and fishing in the coulee, traveling in the coulee and farming in Quincy Basin.

Note: The Ice Age Floods Height Finder would be associated with these panels.

Note: Plans currently exist to replace the vandalized panel at the trailhead to the caves, and to locate interpretive panels focusing on Watchable Wildlife along a trail that has been constructed from the lower parking area to a point on the lakeshore.

Priority for Implementation

Phase 1

- Develop one interpretive panel.

Phase 2

- Develop the other interpretive panel.

Eastern Region

Wenatchee Confluence State Park

Overview

The Wenatchee area was at the margin of the flood and has a wide variety of features associated with the event. The most significant in terms of Wenatchee Confluence State Park is probably Pangborn Bar on which East Wenatchee is built. However, the significance of the park is not so much in features as in location. Because the Wenatchee area has a large array of features related to the Ice Age Floods and is on the margin of the flood region, the community could be an excellent 'Gateway' community for visitors who want to explore the story. With that in mind, the park, which has high visitation, is well positioned to be an orientation hub for exploration by those visiting or staying overnight.

Status

Wenatchee Confluence is a secondary story point and a primary starting point.

Recommended Changes to Layout and Infrastructure

This park needs an amphitheater as soon as possible. With the number of overnight sites and the occupancy levels, there is a high potential to reach a lot of people with evening programs and stimulate them to begin an Ice Age Floods interpretive experience.

Recommended Ice Age Floods Interpretive Strategies

Interpretive Panels Cluster - Day Use Area

Location

At the end of the Day Use Area parking lot near the dock. The site is easily accessible and has a good view of Pangborn Bar, the river (downstream view) and the mountains to the west.

Key Objectives

In addition to achieving the general objectives identified in the introduction, after interacting with this opportunity, visitors will:

- Know that Pangborn Bar was formed by the Ice Age Floods dropping material as it slowed around the bend in the river channel;
- Know that the area contains a lot of intriguing and spectacular features associated with the Ice Age Floods;
- Know that the ripples formed by the Ice Age Floods, seen from an airplane, were a key factor in the acceptance of Bretz's theory;
- Be inspired to take the Ice Age Floods auto tour from Wenatchee, or at least visit Moses Coulee.

Description and Concept

The following panels are recommended:

Panel 1:

This is a site-specific interpretive panel focusing on the role of the floodwaters in forming the landscape visible from the panel, with a focus on the Pangborn Bar and features downstream from that point, and on features in the surrounding area that people can visit, such as Moses Coulee. One possible design concept is to use a perspective sketch of the area as it was when the floods came through. Flood waters would be transparent to allow a viewer to see what was happening underwater and to get a sense of the depth of the floods. A pull-out enlarged visual would depict Pangborn Bar being formed. Another would depict cliffs being formed as the flood waters sheared away the columnar basalt, and another would depict Moses Coulee being formed as flood waters poured over the Waterville Plateau. A sidebar would contain a brief overview of the Ice Age Floods story to provide context for the site-specific story. Also, a brochure holder would distribute the Regional Ice Age Floods Orientation Map/Brochure.

Panel 2:

This panel focuses on the role of ripples formed by the Ice Age Floods in acceptance of Bretz's theory. One possible design concept is to use historic aerial photographs of areas with ripples (including Pangborn Bar if they are discernable) alongside ones associated with ocean tides or rivers as visuals to support an account of this chapter of the story of the acceptance of Bretz's theory.

Panel 3:

This is a site-specific panel focusing on Pangborn Bar and the use of it for a place to live by humans in prehistoric time and in the present. One possible design concept is to use a stylized perspective of an aerial view of this area to depict human activities on Pangborn Bar and in Moses Coulee over time. If not too sensitive, a sidebar could contain a general account of the use of the bar by Clovis people.

Note: The Ice Age Floods Height Finder would be associated with these panels.

Interpretive Talks (Evening Programs)**Key Objectives**

Specific objectives will depend on the talk, but all interpretive talks on the Ice Age Floods should achieve the general objectives identified in the introduction. In addition, after participating in a talk at Wenatchee Confluence, visitors will:

- Know that the Ice Age Floods were one of several major forces to shape the surrounding area;
- Know that floods that affected the area during the Ice Ages were not just the Missoula Floods;
- Know that East Wenatchee is built on Pangborn Bar, a feature formed by the Ice Age Floods;
- Be inspired to take the Ice Age Floods Auto Tour that originates in Wenatchee, or at least visit Moses Coulee.

Description and Concept

Within the array of evening programs should be presentations on the Ice Age Floods with emphasis on how the floods formed Pangborn Bar and why they dumped so much bedload in the area. Ideally the Regional Ice Age Floods Orientation Map/Brochure

would be distributed at the end of the program.

Distribution Center**Description and Concept**

This site does not have a visitor center and we are not proposing one for the park, but some type of strategy for distributing key interpretive literature, such as auto tour guides, guidebooks and any other such interpretive strategies about the Ice Age Floods should be considered. One possibility is to use a temporary facility, such as a trailer, that could be used seasonally. It could also house a bicycle concessionaire.

Guided Ice Age Floods Bicycle Tours**Location**

Along the existing Apple Capital Loop Trail that runs through the park.

Key Objectives

Specific objectives would depend on the actual focus of the tour, but all Ice Age Floods guided bicycle tours should achieve the general objectives identified in the introduction. In addition, after participating in this opportunity, visitors will:

- Know that the floods were a key force in forming the landscape through which the trail passes;
- Know that a variety of evidence can be found along the trail, including erratics;
- Know what an erratic is, where they came from and how they got here;
- Know that Wenatchee and the surrounding area have numerous features related to the Ice Age Floods and numerous opportunities to learn about the story.

Description and Concept

These guided tours would use the 10-mile Apple Capital Loop Trail that connects the communities of Wenatchee and East Wenatchee to access a variety of erratics and other features located along the route associated with the Ice Age Floods. The interpretation would focus on the Ice Age Floods and related geomorphologic events and resulting features, and also on the impact of the floods on flora, fauna and human activity.

Note: This strategy would be more effective if a bicycle concessionaire was located in the park.

Other Related Interpretive Strategies

The following interpretive strategies could be developed to either include Ice Age Floods information, or would be effective additions to the overall interpretive network for the park.

Apple Capital Loop Trail Tour Guide:

This guide to the Apple Capital Loop Trail that runs through the park should contain both orientation and interpretive information. The interpretive information should cover more than the Ice Age Floods, but that story should be a key part of the interpretation. Also, consideration should be given to a bicycle rental concessionaire for the park. The publication distribution center could be a part of the bicycle concessionaire operation.

Ice Age Floods and basalt flows features playground:

This would use miniature replicas of features found in the surrounding environment as play apparatus, accompanied by interpretive panels focusing on the formation of that feature. Features could include a series of steps looking like a miniature of the stepped formation of a series of basalt flows; a pothole; a cave such as the ones created at the base of a waterfall; a series of columnar basalt columns at different heights for climbing; and perhaps a surface with “ripples” for rolling down or running up and down. The latter would be a good feature to use for focusing interpretation on the Pangborn Bar. Associated interpretive panels would interpret the features and provide an opportunity for parents to ask questions of their children such as, “what would live in this feature?” or, “how did the flood waters create this feature?” This feature should be located in the Day Use Area near the restrooms.

Boaters Guide to the Columbia:

This would be a complete orientation and interpretive guide from the perspective of people boating on the Columbia in the stretch of river between Chelan Falls and Rocky Reach Dam, and between Rocky Reach and Rock Island Dams. Interpretation would include features related to the Ice Age Floods as well as those related to other geomorphologic events. It would also interpret flora, fauna and cultural history.

Priority for Implementation

Phase 1

- Develop the interpretive panel cluster.
- Develop the amphitheater.
- Create and stock the Distribution Center.

Phase 2

- Develop the guided bicycle tour.

Eastern Region

Yakima Sportsman State Park

Note

Yakima Sportsman State Park was not a part of this contract so the information is limited to a brief overview, its status, and general comments as to appropriate interpretive strategies.

Overview

This site would have been inundated by water backing up the Yakima River due to the constriction at Wallula Gap. Consequently, it could be a good spot for focusing on impacts due to deposition of materials. The area could also contain erratics.

Status

Yakima Sportsman State Park is a secondary story point and a secondary starting point.

Possible level and type of interpretive development

Typical secondary story sites have one or two site-specific panels with a brief overview of the floods on one of the panels, a brochure holder for distributing the Regional Ice Age Floods Orientation Map Brochure and an Ice Age Floods Height Finder. The site was not visited because it was not in the project, but if the area contained ice-rafted erratics or bergmounds, those depositional features could be the focus of the interpretive panel(s). If the deposition of material affected agriculture in the area, geo-determinism would be a good focus also.

Eastern Region

Associated Sites

Introduction

Although the network within the State Parks combined with the non-fixed strategies such as guidebooks and maps will be effective in telling the story of the Ice Age Floods, the network would benefit significantly from strategies in several sites not in the project scope and not under the jurisdiction of WSPRC (see Figure 11). The following information identifies those sites and describes briefly the way they could enhance the network. The list is not intended to be inclusive of all such sites.

Highway Rest Areas

Rest areas are key sites for making people aware of sites in the surrounding area that offer interpretive opportunities. They are not good story sites, but can be used effectively for a 'grabber' to pique interest followed by orientation information to guide travelers to sites with additional interpretive and/or orientation information. The following are key rest areas within or near the flood boundaries:

- *Ryegrass RA (I-90)*

Ryegrass is a key portal site for travelers eastbound on I-90. Features associated with the floods are not visible from this site, but they start appearing in the landscape soon after leaving the Rest Area so it is a good place for information on 'what to look for as you travel east.' It is also a good place to make people aware of the opportunities to stop and start experiencing the flood story. Soon after leaving this Rest Area travelers will drop down into eastern Washington at Vantage and come to the margin of the floods and the Columbia River basalt flows. Travelers can begin an Ice Age Floods interpretive experience at Ginkgo Petrified Forest or at Wanapum. Although more interpretive opportunities are available at Ginkgo, the access to water and the day use area may be more appeal-

ing to some travelers. Regardless, both sites have interpretive opportunities that would introduce a traveler to the Ice Age Floods story.

- *Winchester RA (I-90)*

Winchester is a key site for travelers going either direction. It is in the Quincy Basin, which benefited significantly from the soil deposited by the flood waters so some interpretation can be provided keyed to visible features. For those heading west, Frenchman Coulee, Wanapum and Ginkgo Petrified Forest are less than 30 minutes away along I-90. For travelers going east, access to the Coulee Corridor Scenic Byway is close. That Byway accesses such features as upper and lower Grand Coulee, the Ephrata Fan north of Moses Lake, Drumheller Channels and other such features. With that in mind, this is a good place to put a Regional Ice Age Floods Orientation Panel along with some key tidbits of information to pique interest.

- *Schrag RA (I-90)*

Schrag is a key site for travelers going either direction. It is in the Quincy Basin, which benefited significantly from the soil deposited by the flood waters, and is surrounded by rolling hills covered with crops, so some interpretation can be provided keyed to visible features. For those heading east, the scablands are not too far away. For those going west, Frenchman Coulee, Wanapum and Ginkgo Petrified Forest are within a few hours and access to the Coulee Corridor Scenic Byway is close. That Byway accesses such features as upper and lower Grand Coulee, the fields of erratics north of Moses Lake, Drumheller Channels and other such features. With that in mind, this is a good place to put an Ice Age Floods Regional Orientation panel along with some key tidbits of information

to pique interest.

- ***Sprague Lake RA (I-90)***

Sprague Lake Rest Area is not only a key site to make travelers aware of upcoming opportunities; it is a very good story site. It is in the scablands – areas scoured by the floodwaters – with good visual access to a variety of typical scabland features. This should not only be an orientation site it should be an interpretive site. The east-bound Rest Area has a paved trail located along a rim overlooking scabland features, which would be a good location for interpretive panels.

- ***Quincy Valley RA (SR28)***

SR 28 is the main route linking Wenatchee to Interstate 90. The Rest Area is a central location to a large array of easily accessible significant Ice Age Floods features, such as Frenchman, Moses and Potholes Coulees and the West Bar giant ripple currents. It is also close to several key State Parks including Ginkgo Petrified Forest, Wanapum and Wenatchee Confluence. For travelers heading toward Wenatchee, interpretive and orientation information could make them aware of Moses Coulee and Pangborn Bar, the gravel bar on which East Wenatchee is built. It could also make them aware of the array of interpretive opportunities available in the area and direct them to Wenatchee Confluence for more information. For travelers heading to I-90, information could make them aware of Frenchman Coulee, Wanapum, Ginkgo Petrified Forest and the opportunities along the Coulee Corridor.

- ***Hatton Coulee RA (US 395)***

This major Rest Area between I-90 and the Tri-Cities area is located along the access route from US 395 to Steptoe Butte. It is a key location to make travelers going any direction aware of Ice Age Floods interpretive opportunities. For those going south, it would be Palouse Falls State Park and 'The Reach' interpretive center that is being built at Hanford Reach National Monument. For those going north, it would be the features and opportunities in the Cheney/Spokane area or the opportunities

in the Moses Lake area and further west. For those going east on SR26, it is Steptoe Butte State Park. For those going west, it is Drumheller Channels and Ginkgo Petrified Forest State Park. It is a strategic location for raising awareness about the interpretive network and, thus, is a good place for an Ice Age Floods Regional Orientation Panel.

- ***Blue Lake RA (SR 17)***

This site is along the best stretch of highway in the floods area for interpreting the floods. Travelers going south are likely to have already stopped at Dry Falls. They could be also reminded of Lake Lenore Caves which is only a few miles to the south along the highway. For those going north, it is a chance to make them aware of the benefits of stopping at Sun Lakes and also the Dry Falls Interpretive Center. This is a good place for an Ice Age Floods Regional Orientation Panel. It would also be a good place for an interpretive panel focused on the Coulee, but congestion and lack of space may be an issue.

- ***Vernita RA (SR 24)***

For those going south, this Rest Area is on the way to 'The Reach' interpretive center that is being built at Hanford Reach National Monument and would be a good opportunity to make visitors aware of the facility after it is built. Visible from this rest area are two dramatic flood features – Priest Rapids Bar (which towers over rest area across the river) and Juniper Springs Landslide (along Umtanum Ridge a few miles to the west). For those traveling north, it is a good opportunity to make them aware of loop auto tours that would take them to Drumheller Channels, Potholes, Ginkgo Petrified Forest, Frenchman Coulee and other sites.

- ***Prosser RA (I-82)***

For those traveling southeast, this Rest Area will be along the route to 'The Reach' interpretive center that is being built at Hanford Reach National Monument and would be a good opportunity to make visitors aware of the facility after it is built.

- *Selah Creek RA (I-82)*

For those traveling southeast, this Rest Area will be along the route to 'The Reach' interpretive center that is being built at Hanford Reach National Monument and would be a good opportunity to make visitors aware of the facility after it is built. For those going north who will then go east, it is an opportunity to key them into features and opportunities along I-90 east of Ellensburg.

Other Sites

The following are sites that could play key roles in the interpretive network.

- *Moses Lake*

Moses Lake is located central to several key interpretive sites and associated experiences relevant to the Ice Age Floods. It is on the Coulee Corridor Scenic Byway which accesses Lake Lenore Caves, Sun Lakes-Dry Falls, Steamboat Rock State Park and Crown Point State Heritage Area to the north; and Potholes and Drumheller Channels to the south. It is on I-90, which accesses Frenchman Coulee, Ginkgo Petrified Forest and Wanapum to the west and the Cheney/Spokane area and its Ice Age Floods opportunities to the east. Travelers from the east heading to Wenatchee and the parks in that area may also come through Moses Lake. Travelers from the west heading toward the Tri Cities and the opportunities in that area may also come through Moses Lake. This community is centrally located to Ice Age Floods interpretive opportunities in eastern Washington.

A multi-agency visitor center would be a very effective strategy in an interpretive and orientation network, not just for the Ice Age Floods, but for the Coulee Corridor Scenic Byway, Columbia National Wildlife Refuge, Lake Roosevelt National Recreation Area and other tourism opportunities in the area. This is not a strategy that WSPRC would take on by itself, but they could play the role of a catalyst, and could benefit from such a facility. Other key players could be Grant County, US Fish and Wildlife Service, National Park Service, US Forest Service and Bureau of Land Management.

- *Wallula Gap*

Wallula Gap is a key feature in the story of the floods, but WSPRC does not have a good site or the prospects of a good site to interpret this feature. It will be included in guidebooks and literature, but fixed interpretation would reach people who did not have any relevant publications and could be a catalyst for generating interest in the story. The best place to provide fixed interpretation is at the roadside pullout that currently has a heritage marker on a roadside pullout between the Tri Cities and the wildlife refuge. From this vantage point a traveler has a clear view of Wallula Gap. That view is compromised as you travel north or south. Local groups are working on developing interpretive signage and materials in this area. It would be useful for WSPRC to be in touch with these groups and coordinate efforts.

- *Drumheller Channels*

This is one of the most spectacular features associated with the Ice Age Floods. Columbia National Wildlife Refuge Washington Department of Fish and Wildlife (WDFW) both have jurisdiction over part of this feature.

- *Steptoe Butte SP*

In terms of the Ice Age Floods, this site is significant because of the views of the landscape as it would have looked before the floods scoured the landscape. It is a good site to be used in conjunction with other adjacent locations to focus on the impacts of the floods.

- *Spokane Visitor Information Center*

This facility in downtown Spokane is a good opportunity to raise awareness of the Ice Age Floods for travelers coming into Washington State.

Cost Range Information

Introduction

As with construction of anything from an exhibit to a house, accuracy of the estimate is relative to the accuracy and detail of the design. An interpretive plan does not include designs, but rather design concepts, and those are limited to the interpretive strategies rather than infrastructure. Consequently, it is not possible to develop estimates with any meaningful degree of accuracy. However, it is possible for interpretive panels and a few other strategies to make a set of assumptions and develop cost range estimates that can be useful for budgeting.

Basic Cost Information

Interpretive Panels

A typical, digitally produced, fiberglass embedded panel containing about 9 square feet of surface (2'x 3'), with extruded aluminum frames and metal posts, will cost between \$2500 and \$7500 for all design, text writing and fabrication. Shipping and installation are not included because those costs vary significantly with location of the site. The variation in cost is primarily due to the design. Signs with original artwork and complex text are going to cost more than signs with embedded photos and limited text. Additional panels with the same design can cost as little as \$1000.

The cost for brochure holders is highly variable because it depends on design and materials. Plexiglas holders can be ordered for about \$25 - \$40 apiece.

Audio Listening Posts

The hardware for an audio listening post, including the chip, can be obtained for as little as about \$1500-\$2000. However that does not include the cost of recording the message, which can be relatively inexpensive if done in-house, and very expensive if a professional voice is hired and the work done in a recording studio.

Brochures

Publications are virtually impossible to price without more specific design information because there are so many variables that significantly affect the cost such as number of pages, folds, binding, colors, source of text, type of artwork, and other variables. However, a recent project involved designing (text was supplied) and printing 2000 copies of a 3-fold, four-color brochure with printing on both sides for a cost of around \$2000. If the choice had been made to have the paper laminated instead of folded, the cost would have doubled. Those prices could provide some insight into the cost of developing the smaller publications if they were contracted out. However, the cost of publications can vary significantly if they are designed and printed in-house.

Exhibits

Exhibits can cost as much or as little as you want. However, as a general rule of thumb, simple exhibits will cost around \$250 per square foot of exhibit space. If more complex exhibits are used, such as dioramas, the cost will be closer to \$500 per square foot. If electronics are used, particularly interactive components, the costs per square foot applications do not apply. The smaller the facility, the less accurate the cost-per-square foot approach. In the case of Dry Falls or interior exhibits for Cape Disappointment, Ginkgo, Sacajawea and Fort Okanogan, the spaces are too small for the cost-per-square foot approach to be useful.

Specific Cost Range Estimates

Based on the information supplied, we can provide cost range figures for interpretive panels, the Regional Ice Age Floods Orientation Map/Brochure, the Sensory Treasure Hunt and the Flood Features Identification Card.

Site	Item	Description/ Assumptions	Cost Range	Comments
NA	Sensory Treasure Hunt	One page both sides; folded; 4-color; 2000 copies	\$2000-3000	
NA	Regional map/ brochure	One page both sides; folded; 4-color; 2000 copies	\$2000-3000	
NA	Flood features ID card	One page both sides; folded; 4-color; 2000 copies; laminated	\$3500-5000	
<i>Beacon Rock</i>	Panel	1 panel at highway rest area	\$2500-7500	
	Panel cluster and additional panels	3 panels at trailhead to interpretive trail - 2 (thematic overview and regional orientation) are duplicates. 2 more along trail	\$10,000-20,000	
	Mini-interpretive trail	2 panels at top; 5 small panels along route	\$12,500-22,500	The number of small panels necessary has not been identified
<i>Cape Disappointment</i>	Panel cluster	2 panels in cluster along walkway	\$5000-12,500	
<i>Bridgeport</i>	Panel cluster	2 panels in cluster at upper parking area	\$5000-12,500	
<i>Columbia Hills</i>	Panel cluster	3 panels at lower viewpoint - 2 (thematic overview and regional orientation) are duplicates	\$4,500-9,500	
	Panel cluster	4 panels at upper viewpoint - 2 (thematic overview and regional orientation) are duplicates	\$7000-14,500	
	Panels	Overview and orientation panel for interpretive trail	\$5000-10,000	
<i>Columbia Plateau Trail</i>	Kiosk panels	4 panels on kiosks at trailhead - 2 (thematic overview and regional orientation) are duplicates	\$7000-14,500	This cost is per set of panels - one set is needed for each trail access point

Site	Item	Description/ Assumptions	Cost Range	Comments
<i>Crown Point</i>	Panel cluster	3 panels at viewpoint - 2 (thematic overview and regional orientation) are duplicates	\$4,500-9,500	
<i>Daroga</i>	Panel	1 panel along walkway	\$2500-7500	
<i>Fort Okanogan</i>	Panel cluster	2 panels at viewpoint	\$5000-12,500	
<i>Ginkgo</i>	Panels	4 panels on viewpoint behind interpretive center - 1 (thematic overview) is a duplicate	\$8500-17,000	
	Panel	Single panel for erratic	\$2500-7500	
	Panel	Regional Orientation panel (duplicate) for kiosk in front of center	\$1000-2000	
	Audio listening post		\$5000-10,000	
<i>Wanapum</i>	Panel	1 panel in Day Use Area	\$2500-7500	
	Panels at trail	Overview and orientation panel for interpretive trail	\$5000-10,000	
<i>Lincoln Rock</i>	Panel	1 panel in Day Use Area	\$2500-7500	
<i>Lyons Ferry</i>	Panel cluster -	3 panels Boat Ramp area	\$4,500-9,500	
	Panel cluster -	2 panels Day Use Area	\$5000-12,500	
	Panel cluster -	3 panels at boat drop off	\$7500-15,000	Only one panel is specified for flood interpretation in the plan. Two panels for other subjects.
<i>Maryhill</i>	Panel	1 panel in Day Use Area	\$2500-7500	
<i>Palouse Falls</i>	Panel cluster	3 panels for lower overlook - 2 (thematic overview and regional orientation) are duplicates	\$4,500-9,500	

Site	Item	Description/ Assumptions	Cost Range	Comments
<i>Palouse Falls</i>	Panel cluster	2 panels for upper viewpoint	\$5000-12,500	
	Panels at trail	Overview and orientation panel for interpretive trail	\$5000-10,000	
<i>Potholes</i>	Panel cluster	2 panels in Day Use Area	\$5000-12,500	
<i>Riverside</i>	Panel	1 panel at suspension bridge	\$2500-7500	
	Panel cluster	3 panels at Bowl and Pitcher Overlook		
	Panel	1 panel along trail to Bowl and Pitcher	\$2500-7500	
<i>Centennial Trail</i>	Panel cluster	4 panels at overlook in Riverfront Park - 2 (thematic overview and regional orientation) are duplicates	\$7000-14,500	
<i>Sacajawea</i>	Panel cluster	2 panels along river	\$5000-12,500	
<i>Steamboat Rock</i>	Panel cluster	4 panels in Day Use Area - 2 (thematic overview and regional orientation) are duplicates	\$7000-14,500	
	Panels at trail	Overview and orientation panel for interpretive trail in Northrup Canyon	\$5000-10,000	
<i>Sun Lakes</i>	Panel cluster	4 panels near marina - 2 (thematic overview and regional orientation) are duplicates	\$7000-14,500	
	Panels	3 panels, at beginning of interpretive trail - 1 (thematic overview) is a duplicate	\$6000-14,500	
<i>Dry Falls</i>	Panel cluster	4 panels for parking area - 2 (thematic overview and regional orientation) are duplicates	\$7000-14,500	
	Panel cluster	2 panels for new viewpoint	\$5000-12,500	
	Audio listening post		\$5000-10,000	
<i>Lake Lenore</i>	Panel cluster	2 panels for upper parking area	\$5000-12,500	
<i>Wenatchee Confluence</i>	Panel cluster	3 panels for Day Use Area	\$7500-15,000	

Implementation Plan

Note: This section contains recommendations for implementation made by an outside contractor who was not privy to all the issues affecting the WSPRC as a whole and affecting each park individually. Consequently, agency actions may deviate significantly from these recommendations due to other issues and needs with the park system. Note also that the plan and recommendations reflect the situation at present. As goals, audiences, parameters and opportunities change, the plan must be modified to reflect those changes.

Introduction

The priority for implementing interpretive opportunities in a network is generally determined by what provides the most ‘bang for the buck,’ tempered by the need to provide orientation first because it is a need, followed by thematic overview so people can then understand any detail. This philosophy was followed in determining the priority for implementing strategies for each of the parks in the project. That information is found in the section containing the media prescription for the individual parks. However, this project has characteristics that complicate determining priority for implementation. First, the project includes 24 sites covering an area from Cape Disappointment on the Pacific Ocean to the Centennial Trail on the border with Idaho. Different sites have different characteristics and attributes that affect their overall priority within the system of parks. Also, this network depends heavily on non-fixed strategies that encompass numerous sites rather than just one, which elevates the priority of those strategies because more interpretive and orientation information can be delivered for less cost than for developing fixed opportunities at all the parks represented in a strategy such as a guidebook. Since one goal is to support rural tourism, and because the story is spread across the landscape in thousands of locations not in State Parks, the non-fixed strategies become even more important.

Criteria

Priority for implementation was determined by focusing in part on the following goals:

1. Build momentum for developing and maintaining a complete orientation, wayfinding and interpretive network for the Ice Age Floods.

This is accomplished by implementing key parts of the network that are encountered by a large number of people, and attracting more people to those sites with basic orientation information. Consequently, this goal suggests working on developing the necessary Memoranda of Understanding with agencies and entities with key starting points under their jurisdiction, such as Rest Areas, and taking other such steps to facilitate an integrated approach to developing a complete network for the State of Washington, such as by developing design standards.

2. Firmly establish the plan developed by WSPRC as a template for others. This also suggests developing the MOUs and developing a comprehensive packet of

design guidelines to facilitate acceptance of the network proposed by this plan as a template to other agencies and entities.

3. Increase awareness of the story and the opportunities to learn about it across the entire state as quickly as possible.

This suggests an approach that is not based on focusing on one park at a time. It dictates getting a basic network in place as quickly as possible so visitation to all State Parks is increased. It also suggests focusing on those sites with a lot of visitation, such as Ginkgo Petrified Forest.

Priority was also determined in part by the status of the park by classification as a primary or secondary Story Point and primary or secondary Starting Point. Figure 12 depicts classification of each park. Those parks that are both primary story and starting points should be a high priority because they can reach a lot of people and tell a lot of the story. Those parks that are either a primary story point or starting point should be the next highest priority, and those that are both secondary story points and secondary starting points should be the lowest priority. Note that this is a general approach. All parks need to be assessed in terms of specific context and role in the area in which they are located. For example, even though Cape Disappointment is a secondary story and starting point, it is the only park in that area with Ice Age Floods interpretive opportunities. Consequently, it is a higher priority than other parks in that category.

Prioritization of State Parks for Ice Age Floods Interpretive Strategies

Based on those criteria, the parks can be separated into the following categories:

<i>Highest priority</i>	<i>Moderate Priority</i>	<i>Low Priority</i>
• Dry Falls Interpretive Center	• Wenatchee Confluence State Park	• Bridgeport State Park
• Sun Lakes State Park	• Riverside State Park	• Centennial Trail
• Steamboat Rock State Park	• Frenchman Coulee	• Daroga State Park
• Ginkgo Petrified Forest State Park	• Palouse Falls State Park	• Fort Okanogan State Park
• Columbia Hills State Park	• Crown Point State Heritage Area	• Lake Lenore Caves
• Beacon Rock State Park	• Cape Disappointment State Park	• Maryhill State Park
	• Columbia Plateau Trail	• Mount Spokane State Park
	• Lincoln Rock State Park	• Potholes State Park
	• Wanapum Recreation Area	• Sacajawea State Park
	• Lyons Ferry	• Yakima Sportsman State Park

Approach

At this time it is difficult to establish an absolute priority in terms of strategies. However, we recommend a general approach that focuses on implementing personal interpretive services as quickly as possible in all parks, developing fixed strategies at primary story points with a lot of visitation, such as at Dry Falls and Ginkgo, implementing strategies that encourage visitation to multiple sites, such as the Regional Ice Age Floods Orientation Map/Brochure, and taking the steps necessary to facilitate a coordinated interpretive network.

Phase 1 – Highest Priority

Administrative tasks

Assign one key staff person to focus on the following:

- Implementing the IAF Interpretive Plan;
- Liaison with other IAF projects at the state, regional or local level;
- Facilitating the implementation of State Parks IAF projects that require partners/partnerships;
- Developing a database of other IAF projects in the state for coordination;
- Developing formal relationships with other state agencies (Department of Transportation, Department of Fish and Wildlife, Division of Tourism) through Memorandums of Understanding (MOUs) to assist in building the interpretive network;
- Working with local communities on cooperative projects and identify implementation partners;
- Seeking membership in the Federal Interagency Ice Age Floods Technical Committee;
- Working on developing agreements with concessionaires to provide some of the tours and services identified for the network;
- Identifying potential partnerships (i.e. University of Washington Press, Sasquatch Books, Mountaineers, free lance writers) for key printed materials projects with state-wide coverage (i.e. series of Regional Guides, Boaters Guides, etc.).
- Developing a process for review to ensure accuracy of the information, ensure quality of the interpretive opportunity, ensure consistency with the intent of the interpretive network, and control use of the Ice Age Floods logo.

Specific Projects

Design Guidelines

Develop a Style Guide and Templates for all media based on type of signs and media materials recommended in IAF Interpretive Plan. It should be designed for use by State Parks and other agencies and entities developing Ice Age Floods interpretive opportunities. This will ensure consistency in image and branding and a common look even if others are developing interpretation.

WSPRC Ice Age Floods Web Site

Develop IAF-related State Parks website. Linkages can be made to other IAF-related agencies, groups and projects. This becomes a vehicle for making people aware of new opportunities and the continuing development of the interpretive network.

Presenter's Kit, Personal Interpretation Manual for the Ice Age Floods and Personal Interpretive Strategies

Develop the Personal Interpretation Manual for the Ice Age Floods and Presenter's Kit so interpreters in all the parks are telling the same story and have access to techniques and programs that would be effective. In addition, develop park-specific program outlines and/or scripts to facilitate developing personal interpretation programs in all parks.

Training Seminars

Develop and conduct training seminars for State Parks personnel and others interpreting the Ice Age Floods story on the story of the floods. How to use the plan and how to use the presenter's kit should be a part of the training.

Ice Age Floods Thematic Overview Panel

Note that the thematic overview panel is already being developed because site-specific panels are being developed for Dry Falls and Palouse Falls.

Site-specific interpretive panels identified in Phase 1 for Dry Falls, Sun Lakes, Steamboat Rock and Ginkgo Petrified Forest

These are all primary story points, and primary starting points. Consequently, strategies have the potential to be read by a lot of visitors. Also, because Dry Falls and Ginkgo have facilities, interest generated by the interpretive opportunities can be capitalized by distributing follow-up materials for exploring the story.

Regional Ice Age Floods Orientation Map/Brochure - Moses Lake/Wenatchee Area

We recommend developing one as a prototype and evaluating it before developing the publications for the other regions. We recommend developing the materials for this region because it has the highest number and concentration of parks with Ice Age Floods interpretive opportunities, and has some of the most spectacular features. It may be easier to begin attracting attention by developing the network in this region first and then working your way out to encompass other regions. This does not mean to ignore the other regions; it simply means that more effort is put into such places as Ginkgo, Dry Falls, Sun Lakes, Steamboat and the other parks in the region to build a network to the point of critical mass - where it has enough opportunities to become a destination experience in itself.

Regional Explorer's Guide - Moses Lake/Wenatchee Area

Regional Ice Age Floods Orientation Panel - Moses Lake/Wenatchee Area

Ice Age Floods Sensational Treasure Hunt

It is important to offer opportunities for children, and to generate interest from this audience for exploring the story in the park they are visiting, in other parks and in other areas.

Phase 2 - High Priority

The entire project needs to be reassessed periodically as different projects are implemented because it is likely that unanticipated delays in implementing some projects and unanticipated impacts from others will shift the priorities. For example, if MOUs are worked out with WSDOT, implementing strategies in the Rest Areas may become the highest priority. Assuming that everything proceeds reasonably well in the first phase, the following projects should be considered for the next priority:

Specific Projects

Ice Age Floods Features Identification Card

Site Specific Interpretive Panels identified in Phase 1 for Columbia Hills, Beacon Rock, Wenatchee Confluence, Palouse Falls, Riverside, Centennial Trail, Crown Point

Regional Ice Age Floods Orientation Panel - Lower Columbia Region

Regional Explorer's Guide - Lower Columbia Region

Regional Ice Age Floods Orientation Map/Brochure - Lower Columbia Region

Interpretive Viewpoint with panels and Interpretive Trail – Dry Falls

Interpretive Trail – Sun Lakes

Additional Phases

Priority should be re-determined after assessing the impact of the strategies implemented to this point.

Appendices

Appendix A.

Audience Analysis

Introduction

Information is a market product in that visitors must “buy” it with their personal resources, including effort, money and time – their most valuable currency. It cannot be expected that visitors will “buy” an information experience unless it is a product that they deem to be worth buying. Experiences that users are willing to buy can generally be described as ones that:

- Meet their needs;
- Meet their expectations;
- Are within their limitations of time, money, energy, and other such resources;
- Can compete successfully with other options for spending time, usually through association with interests that were the reason for the visit in the first place.

In summary, those categories of characteristics are as follows:

Needs include basic amenities, such as food, shelter and bathrooms. State Parks as a general rule do not need to supply all the visitors’ needs, but may want to direct them to locations where such needs relating to amenities can be filled, such as to nearby lodging or eating establishments. Needs also include wayfinding information. Visitors need such information to function in a strange environment, and to feel comfortable in their ability to cope with that environment. Visitors may not be as receptive to interpretive information until properly oriented, so a park must supply wayfinding information for the park at a minimum. If one of the goals is to motivate people to explore the surrounding landscape focusing on features related to the Ice Age Floods, the park will also have to supply wayfinding information for the surrounding area.

Expectations are more variable because they are created. Visitors will expect a certain level of service, a certain type of experience, and certain information based on what they’ve heard and seen regarding a park. In terms of interpretation, visitors will expect the opportunities to be high quality, and will expect to have the most prominent features interpreted, whether related to the Ice Age Floods or not. The key is to start a visitor where he or she wants or is willing to start in terms of interpretive information, and then take that person to the Ice Age Floods story.

Limitations are those factors that tend to offset the personal benefit for engaging in an experience and can therefore cause a potential user to bypass an opportunity. For example, visitors are often on vacation and do not want to ‘work’ – either physically or mentally – at their recreation unless the personal benefit is worth the effort required. This has important implications in the selection and design of interpretive strategies and programs. For example, interpretive trails must be within the energy and time limits of the visitor. As another example, interpretive signs should be designed for legibility, among other factors, to reduce effort so they are within the capabilities of the visitor to read the text. Limitations can also be related to physical ability, language, education level and many other characteristics.

Interpretive Opportunities are, in essence, the stories that can be told effectively in a park or in the surrounding area. The stories that can be interpreted and communicated most effectively are those that can be 'seen' in the landscape. Consequently, an inventory of interpretive opportunities is essentially an inventory of features and the stories related to those features. For example, the landscape around Dry Falls tells the story of repeated flows of basalt followed by powerful surges of water pouring across the landscape; Beacon Rock tells the story of volcanic activity and subsequent erosion – two forces in the geomorphologic evolution of the gorge; and the petrified trees at Ginkgo Petrified Forest tell the story of climate change. That does not mean that the interpretation is confined to features that are visible; it simply means that interpretation of visible features is a good starting place for interpretation.

Since needs, expectations, limitations and opportunities are directly related to, determined by, and vary according to the user, it is important to identify typical user segments, and then build profiles of those segments. This audience analysis focuses on identifying the major target user segments for the Ice Age Floods and constructing a profile of each of those segments based on needs, expectations, limitations and interests. Since one of the goals is to motivate visitors at one site to visit other sites associated with the Ice Age Floods, we assume that every site will potentially have the same general audiences, so all are profiled in this section. A few of the sites, such as Centennial Trail, the Columbia Plateau Trail and several sites with boat ramps, will also have users who are predominantly activity-oriented. Those users are profiled in this section also. Audience characteristics unique to visitors to a particular park are included in the description of information relevant to that park.

Target Markets

Identification of target markets is based on observations by park staff, historic use of State Parks and extrapolation of travel and recreation patterns that exist in other parts of Washington State and the United States. Based on information from those sources, the following are probably the key target audiences:

Independent Travelers:

This group includes leisure-oriented travelers, such as vacationers and day-trippers, and also other travelers with some discretionary time to spend, such as business travelers, people visiting friends in the area and other such travelers.

Organized Groups:

This segment includes commercial tours and other such groups, but not educational groups.

Residents (of the local area):

This group includes all the people living near a park.

Activity-oriented Users:

This segment includes equestrians, mountain bikers, hikers, boaters and anglers. As a general rule, it includes groups for whom interpretive opportunities may be regarded as interfering with their desired activity.

Educational Groups:

This segment includes university field trips, school field trips and Elderhostels.

Note: Specialists, such as those with considerable knowledge regarding the Ice Age Floods, are not listed as a target audience because interpretive opportunities are not generally designed to reach this small minority of visitors. Interpretation caters to those with moderate or little knowledge of a subject because interpretive opportunities with more detailed information reach only a small minority of visitors, and rarely communicate anything to those visitors that they do not already know.

General Characteristics: All Target Audiences

The following set of characteristics should be considered as part of the profile for all the target audiences:

- Many visitors will expect staff and volunteers associated with the State Park to answer basic questions regarding the basic Ice Age Floods story – geology of eastern Washington, causes, features at the specific area and timeline – especially at Parks where the story is prominent (i.e. Dry Falls and Palouse Falls).
- Every audience will ask questions that cannot be answered.
- Visitors from every audience will expect wayfinding information to interpretive and recreational opportunities in the surrounding area, especially ones with a similar focus (i.e. other prominent Ice Age Floods features in the area – not necessarily State Park owned or managed).
- With the exception of visitors with technical expertise and some university groups, the knowledge level of visitors regarding geology and the Ice Age Floods story is likely to be very basic or non-existent.
- Any given audience will have a variety of impairments represented.
- Users will have varying limitations in terms of energy, time, interests and preferred learning styles.
- Users will have varying degrees of educational background.
- People tend to visit in groups – family or friends. Families and other similar groups have a variety of educational levels within the group.
- Groups, especially families, often prefer to interact with each other while participating in an interpretive experience.

Implications

The following are key implications of these characteristics:

- Interpretive opportunities such as signs and exhibits should be designed to accommodate at least small groups (i.e. several people of varying ages involved at the same time).
- Any interpretive program should provide opportunities that allow all members of a family or group to be involved at the same time and place, despite having different educational or experiential backgrounds. This task can be accomplished by providing several opportunities, each catering to a different educational level, in one location, or a single strategy that is designed in such a way that everyone in the group can find something of interest.
- All staff and volunteers at a Park should be trained in question-response strategies, be provided with basic information about the Ice Age Floods, be provided with answers to typical questions and know where to direct visitors for additional information. Everyone either must be able to answer basic questions or direct visitors to where they can get answers. An effective way of making the necessary information available is through familiarization tours of nearby areas and associated information packets.
- The interpretive program must offer opportunities that are understandable to audiences with limited expertise and knowledge.
- As a whole, the interpretive program should use universal design standards to make the information accessible to all people, despite any impairment, whether it is visual, auditory, physical or otherwise.

Note: An interpretive program that addresses all impairments will also serve an aging population because impairments – not age – ultimately limit a person’s ability to engage in interpretive opportunities.

- To the extent possible, the interpretive program should provide an array of strategies that include opportunities for each of the basic learning styles – observation, social interaction, and hands-on.
- To the extent possible, the interpretive program should present information in a way that is rewarding, within the limits imposed by a ‘leisure’ activity, and arranged thematically to keep effort low.
- To the extent possible, the interpretive program should offer opportunities to “skim”, “browse” or “gorge” the information to accommodate preferences and to accommodate visitors on a tight schedule.
- The interpretive program should provide an ‘opportunity menu’ that lists time required for each activity and suggested itineraries based on time available. For example, it should suggest an itinerary for the visitor that has a half-hour, two hours and a half-day. The interpretive program should offer information at different levels corresponding to different educational backgrounds.

General Characteristics: Independent travelers

According to the 2002-2003 Strategic Recommendation for Washington State Tourism presented by Publicis in the West, people in the U.S. work longer and take less vacation than people in any other industrialized nation. With such limited vacation time, potential travelers are reluctant to travel, in part, due to a cost-benefit analysis that often leaves them unsure of the benefits. Visitors want to be sure that the return on investment is going to be worthwhile. Therefore, they are likely to be more attracted to areas that offer a diverse array of opportunities that can be enjoyed within a 4-5 day “breakation” as the report termed the shorter vacations that are becoming more common. From this perspective, it is in the best interests of WSPRC to integrate the parks with other nearby opportunities to present an image of an area that has a wide array of opportunities rather than just presenting the opportunities at a Park. Developing parks as ‘hubs’ or ‘portals’ leading to an Ice Age Floods interpretive experience encompassing a larger area and multiple sites is consistent with the characteristics of this market. The 2004 Visitor Profile for Northeast Washington Counties (Washington State Tourism) illustrates the strong interest visitors to the four northeast counties have in geology. Nineteen percent of all overnight visitors to these counties mention that one of the reasons for visiting this part of the state is for learning more about geology. Note that “Geological Site” is a separately listed category and ranks 8th in all activities during a trip. Although this represents a small geographic area of the state, this level of visitor interest has potential for growth in the more heavily traveled areas of Washington State.

Key Characteristics

- Independent travelers in general prefer to have information easily available in the sequence in which they want to use it, which appears to be: 1) General trip planning and wayfinding; 2) Site-specific trip planning and wayfinding; 3) Thematic overview; 4) Interpretive detail.
- Many travelers prefer to plan part of their trip, including their itinerary, prior to arriving. Some of these travelers will use the Internet in order to plan their trip.
- Travelers prefer user-friendly, easily accessible wayfinding information at the beginning of their experience and throughout. Information could be accessible via the Internet, along the route and at sites associated with their trip. The constant need for reassurance on location and wayfinding is why a fixed wayfinding strategy, such as a sign at a parking area, is insufficient to meet all the visitors’

wayfinding needs.

- Independent travelers prefer or desire recommendations for itineraries or other places to visit during their trip. Many of these travelers prefer potential itineraries to include travel time required instead of or in addition to distance so they can plan accordingly.
- In general, the larger the arrays of opportunities of interest to a visitor that are available in an area, the more attraction power the area has. This is consistent with the profile of the target market for Washington State identified in the 2002-2003 tourism marketing strategy recommended by Publicis.
- Many tourism studies indicate that the most important quality of a vacation is fun. Relaxing, escape from schedule, exciting, culturally enriching, authentic, safe and different are also appealing attributes.
- Travel patterns for travelers usually show families traveling more in the summer months and retired travelers traveling more in the spring and fall.
- The mass marketing of the last few decades has shifted to one-on-one marketing because of the ability of travelers to develop an itinerary specific to their interests. Technological developments, especially the Internet, have influenced this shift in the field of tourism.
- A number of sources indicate that increasing number of tourists identify authentic experiences as an important factor in travel plans. The Ice Age Floods story, told at sites with features created by the event, should appeal to visitors seeking an authentic experience. These travelers tend to travel in small groups, use hotels and motels.
- Soft adventure (outdoor activity during the day, luxury at night) is a very attractive visitor experience for this group.

Implications

The following are key implications of these specific characteristics:

- Seasonal shifts in programs should be considered.
- Provide easy to use Internet website for trip planning by making connections to Washington State Tourism's www.experiencewashington.com website.
- Other opportunities should be marketed in conjunction with those related to learning about the Ice Age Floods.
- The opportunities of the Ice Age Floods experience should be described in terms such as "fun", "relaxing", "authentic" and other attributes that appeal to the target markets.
- Information about potential opportunities posted on the Internet should be designed to facilitate a potential visitor building his or her own itinerary.

General Characteristics: Organized Groups

Several interpretive sites associated with the Ice Age Floods, including Palouse Falls, Dry Falls Interpretive Center and Ginkgo Petrified Forest, are currently used by commercial bus tours and organized groups, some of which focus strictly on geology. In addition, other tours, such as boat tours up the Columbia and Snake Rivers, pass by many features associated with the Ice Age Floods. Interpretation could be offered to passengers on these tours. The following are key characteristics of this target market:

Key Characteristics

- These groups tend to be organized by commercial companies or interest groups (senior centers, Elderhostels, community education tours) who provide transportation and prepare an itinerary and schedule.
- Some visitor groups may be international and can be accompanied by a language interpreter.
- The groups tend to be relatively homogenous (age, race, experience level).

Implications

The following are key implications of these characteristics:

- Basic interpretive materials need to be available in the common languages spoken by a significant number of visitors to a park (i.e. Japanese at Ginkgo Petrified Forest and Dry Falls Interpretive Center; Spanish at all sites, especially Palouse Falls).
- A commercial tour is usually on a schedule so programs or opportunities that fit the allotted time frame are most likely to be used.
- Staffing of State Park facilities may need to be flexible to accommodate tours.
- Infrastructure has to be appropriate to handle a large numbers of visitors at one time. A variety of interpretive and/or recreational (such as photographic) opportunities may need to be provided so the group can be split into smaller groups and pulsed through a site.
- This target market usually has a high interest in purchasing souvenirs related to the site and/or story.
- Because the tours are organized and scheduled, it is possible to provide information prior to and after a visit.
- Because most people on the bus do not have to attend to driving, it is possible to provide interpretive information keyed to the route of the tour. This information can be in an audio format, by publication, or by personal interpretation.

Residents

Key Characteristics

The following are key characteristics of residents and should therefore be considered in developing the interpretive network:

- Residents desire experiences that are only for residents and don't require competing for space with tourists.
- Residents prefer opportunities that fit their time frame which is often concentrated in evenings and weekends throughout the year.
- Residents may prefer new material since they are more likely to be repeat visitors.
- Residents can handle more in-depth material about their home due to their familiarity with the area and issues.
- Residents are often interested in local issues.

Key Implications

The following are key implications of these characteristics:

- Interpretive opportunities geared to residents, such as city walks (Wenatchee Confluence), bike tours (Sacajawea), 'What's in Your Backyard' tours, evening outreach programs and community events should be a part of the interpretive network. This is a good way to recruit volunteers.

Activity-Oriented Visitors

Equestrians, mountain bikers, in-line skaters, anglers, hikers and boaters are likely to view some interpretive opportunities as potentially interfering with their desired recreation because they take time that could be used engaging in the primary activity of interest. Although many other visitors are oriented toward specific activities at a park area, such as bird watching, camping, nature study and picnicking, interpretive opportunities are more compatible with those activities because they do not take time away from or prevent a person from engaging in the primary desired activity.

Despite the apparent difficulties associated with communicating with the audience, it can be accomplished by offering interpretation in such a way that it adds value to their desired activity or is offered at a time during which they are not engaging in their desired activity, such as in the evening. The following list of characteristics is shared by most visitors who fall into this category and has an impact on identifying and designing effective interpretive opportunities.

Key Characteristics

- Although these visitors are not likely to be interested in interpretive information, they will be interested in wayfinding information, especially information associated with their primary activity of interest.
- These users may have others in their group who are not engaged in their primary activity but may be interested in interpretive opportunities.
- Many of these activities have natural 'stopping' or 'resting' periods, such as at benches, or by streams. These are ideal places to provide optional interpretive information that can add to their experience.

Key Implications

The following are key implications of these characteristics:

- Interpretive information can be coupled with desired wayfinding information to create opportunities for interpretation and interest in the subject.
- Others in the group may be amenable to interpretive opportunities if they are easily accessible from the location that is being used by the activity-oriented users in the group.
- Optional interpretive information can be keyed to natural stopping or resting places, which vary by user. For boaters, it is when they are on the water. For equestrians, it is likely to be at places where they can turn their animals to feed or water. For in-line skaters it is benches. For mountain bikers, it might be viewpoints where they can rest at the top of a long climb.

Educational Groups

Note: Some of the preferences noted for this group are not in the category of information, but are important considerations if this market is to be served.

Key Characteristics

Typically, with educational groups in the K-12 range, the user that must be sold on the experience is the teacher. Therefore, it is important to look at the characteristics of the instructor as well as the students for guidelines to be used in developing experiences that will be desirable enough to be used. The following are key characteristics of school groups in general:

- Group size is often around 100 students, chaperones and teachers.
- A trip to a site such as Dry Falls Interpretive Center could include the lunch hour because it might be an all-day trip.

- The trips usually take place in the spring, when poor weather is not uncommon.
- School groups will tend to be from local/regional area.

The following are key characteristics of a site and program that would appeal to school groups:

- Covered staging areas will provide an immediate focal point for organizing and orienting students.
- Facilities with multiple toilets and urinals must accommodate large groups at once.
- Turn around space for large vehicles are necessary for buses.
- Covered picnic areas are needed for eating lunch.
- An interpretive program should offer numerous opportunities of approximately the same length which will allow the large group to be split into several smaller groups and pulsed through the site.
- A field learning experience with well-organized schedules with no waiting and with clear directions are desired by teachers
- An interpretive program must support the curriculum in the school. In the case of Washington State Public Schools, a program that can be tailored to help fulfill an Essential Academic Learning Requirement (EALR) will be more attractive to teachers. In this case, the Science Essential Academic Learning Requirement appears to be most appropriate, with the story of the Ice Age Floods used as a vehicle for understanding systems and the story of Bretz used as a vehicle for understanding scientific inquiry.
- Interactive, multi-sensory experiences will appeal to students especially if the children are younger.
- A time period that can fit within a school day is imperative due to the cost of overnight trips.
- Inexpensive opportunities are desirable because budgets are limited and the cost of transportation is often already a factor.
- Unique opportunities that cannot be duplicated in a classroom are appealing to teachers.
- Opportunities where many activities are available in one location will be more efficient and interesting.
- Opportunities for students to interact with specialists can infuse the learning experience with meaning.

Appendix B.

Parameters

Introduction

An information network works most effectively when it meshes with and takes advantage of the context within which it is located. Otherwise, it duplicates other opportunities or does not work effectively due to location, traffic flow, competing attractions or other factors. Therefore, the intent of this step is to address the question:

What is the context into which the network of wayfinding and interpretive opportunities must fit?

Parameters are those conditions under which an information network must be developed, such as monetary constraints, and under which it must function, such as climate. Identifying parameters ensures selection and development of communication strategies and infrastructure that are effective and realistic, not idealistic. For this project and plan, general parameters covering all or the majority of sites in the study are included here. Site-specific parameters are covered in the write-up for each park.

General Parameters

The following section contains key parameters that could affect the information network at all or the majority of parks in the project. In reviewing the parameters, it is important to remember that they represent what is, not what should be or what is desired.

Context

C-1: A bill has been introduced into Congress to create an Ice Age Floods National Geologic Trail, administered by the National Park Service, encompassing the pathway of the Missoula floods from Montana through Idaho, Washington and Oregon. As of now, no other state or federal agency is in the process of planning or developing a comprehensive Ice Age Floods interpretive network. It is in the best interests of the State of Washington to develop a network that can provide a template and basis for the eventual interpretive and wayfinding network that will encompass all 4 states. To do so requires envisioning the larger network so the media prescription for each park is appropriate to the site as a part of a larger whole. However, the network for the WSPRC parks must function as a stand-alone network until other interpretive opportunities are developed. Coordination with other agencies and entities likely to be involved in the project is desirable.

C-2: Interpretation of the Ice Age Floods already occurs in many venues and locations along the flood route but it is not coordinated or standardized. WSPRC will be the first effort in this direction. To the extent possible, these opportunities should be integrated into the proposed network.

Budget

B-1: Funds for implementation and ongoing operation and maintenance are likely to be limited. A phased approach to developing the information network may be important. The first phase should contain projects that can be completed easily

and show results in order to maintain enthusiasm and motivation. Low maintenance opportunities should be prime components of the basic network.

Staffing

S-1: Staffing for interpretive and orientation opportunities is likely to be limited. Personal interpretive services can provide a unique and personal experience for park visitors. If consistent funding can be identified, every park in this plan should have at least one program that can be presented in their local facilities, at park programs or in the local community. However due to funding issues, it is unlikely that paid staff will be dedicated solely to providing or assisting with interpretive opportunities on a regular basis at most of the sites. Volunteers may be available, and the Ice Age Flood Institute does exist, but depending on volunteers is not without issues. Consequently, self-guided opportunities should form the basis of the network and should be sufficient to provide a satisfactory experience.

Note: This does not lead to a recommendation against personal interpretive services. It simply leads to a recommendation for an interpretive network that can function without personal interpretive services, but would be enhanced significantly by the addition of such opportunities.

Vandalism

V-1: Vandalism may be an issue. Virtually all sites in the project have or could have issues with vandalism. Therefore, use of signage and structures in remote locations should be minimized. All signage should be constructed with vandal-resistant materials.

Location and Access

LA-1: The array of parks covers a large area with sites often separated by a significant distance. The wayfinding network is critical to marketing and facilitating a larger experience involving multiple sites. It will be important for local park managers to consider how their visitors can connect with their park and the local surrounding communities.

Environmental Conditions

E-1: Summers are likely to be hot and winters relatively cold. Exterior informational opportunities must be either stored during winter months or constructed of materials highly resistant to the anticipated weather conditions. Areas with shade should be developed for giving interpretive presentations in the summer.

Surrounding and Associated Attractions

SA-1: Washington State Parks as a whole has a large array of features and interpretive opportunities relating to the Ice Age Floods under their jurisdiction. However, the majority of features and sites associated with the Ice Age Floods are located on lands under the jurisdiction of agencies and entities other than the WSPRC. Care has to be taken to support the rights of private property owners by making visitors aware that all features and sites they might see in the landscape once they leave the park are not necessarily accessible. A basic approach may be to do as much as possible within each park in terms of interpreting the Ice Age Floods and then encourage people to visit other specific sites outside the park, including other state parks, where they can get more of the story.

Safety

SF-1: Every site in the network has potential hazards. These hazards range from rattlesnakes and steep cliffs to railroad right-of-ways, barbed wire and swift water. Appropriate safety information needs to be incorporated into the interpretive strategies, especially the Regional Ice Age Floods Explorer's Guides.

Appendix C.

Park-Specific Parameters and Opportunities

Introduction

The following section contains an overview of every park included in this project. Information for each park contains the following:

Ice Age Floods Significance

This park is adjacent to the point where the flood waters emptied into the Pacific Ocean, carrying with them material it scoured from the landscape. Some of that material has ended up as far away as offshore northern California. The undersea area that received the eroded material from the Ice Age Floods is larger than the land area affected by Glacial Lake Missoula and the flood waters.

Key Ice Age Floods Interpretive Opportunities

In general, people become more interested in a subject when they can see something related to it, and they are more likely to believe what they can see than what they only hear or read. Therefore, the more an interpretive program connects with and uses actual artifacts or features in conveying information, the more effective the program will be. The inventory of opportunities within the context of interpretive planning focuses on inventorying artifacts and features available for use in the interpretive program in order to develop a story based on what visitors can see or experience. In this case, the focus is on features associated with the Ice Age Floods.

Key Parameters and Unique Audience Characteristics

These are site-specific characteristics or characteristics unique to audiences who come to this site that potentially affect the interpretive strategies at this park.

Comments

This is the end of the route for anyone traveling the flood path unless they were then to get in a boat and travel on the Pacific Ocean. This park and the interpretation in it are heavily geared toward cultural history with a current emphasis on Lewis & Clark. As with Columbia Hills, caution should be exercised in providing too many stories in the same place.

Southwest Region Beacon Rock State Park

Ice Age Floods Significance

The Columbia Gorge is highly significant in terms of the Ice Age Floods. The Gorge was a bottleneck for the flood waters, causing them to back up and form a temporary lake that stretched upriver to Wallula Gap. Upon reaching the west side of the Gorge, the floods slowed down as they reached the broader valley, and dropped bedload, which is what the cities of Portland, Troutdale, and Gresham among others are built on. On the Washington side, an 11-mile long gravel bar formed downstream of Prune Hill. Its west end is what the Port of Vancouver is built on. In the process of passing through the narrow river canyon, the flood waters tore away at the gorge walls, helping to form the cliffs faced with columnar basalt, the hanging valleys and waterfalls that dominate the Gorge today. Beacon Rock is a volcanic plug, representing another force of change within the Gorge, which was probably exposed by flood waters passing around and over the top of this feature.

Key Ice Age Floods Interpretive Opportunities

The key feature at the site, Beacon Rock, is a volcanic plug, thus representing another geomorphologic force that shaped the area. However, the story of the Ice Age Floods can be integrated into the story of Beacon Rock by using it as a focal point for focusing on key forces and events that shaped the Gorge, including volcanic activity in the Gorge, uplift associated with tectonic activity, and the erosive action of water, including the Ice Age Floods. Specifically, volcanic activity led to the formation of the volcanic plug, excavation of the Columbia Gorge slowly by the river gradually eroded away some of the rock and sediment around the plug, and then the Ice Age Floods swiftly scoured away soft material around the plug to leave the modern spire. In addition to Beacon Rock, cliffs of columnar basalt are clearly visible from the Day Use Area, creating the opportunity to focus on the interrelationship between Columbia River basalt flows and the Ice Age Floods in terms of creating cliffs of columnar basalt.

Key Parameters

- This is the one property within the heart of the Columbia River Gorge under the jurisdiction of WSPRC. The erosional effects of the flood (shearing off columnar basalt) are clearly visible from the Day Use Area.
- Beacon Rock is best viewed from the interpretive trail in the Day Use Area.
- There is a small indoor visitor center, so it is possible to sell interpretive materials associated with the Ice Age Floods. However, the facility is removed from the restrooms and interpretive panels, the location where most highway travelers stop.
- There are new exhibits in the Day Use area – one refers to the floods, including the scouring of the cliffs across the river and the floodwaters being so deep as to overtop the Rock.
- This park is in the middle of the gorge, and has the potential to act as a portal for travelers going east or west.
- The key location for capturing visitors to Beacon Rock State Park is most likely the restroom facility east of the rock. It also has interpretive panels, but lacks site orientation information.
- The new Day Use Area is currently not well marked but improvements are proposed.
- The park is within the Columbia Gorge National Scenic Area, which has strict guidelines regarding intrusion into viewsheds. For example, interpretive panels in the Day Use Area cannot be visible from the top of Beacon Rock.

*Southwest Region
Cape Disappointment State Park*

Ice Age Floods Significance

This park is adjacent to the point where the flood waters emptied into the Pacific Ocean, carrying with them material it scoured from the landscape. Some of that material has ended up as far away as offshore northern California. The undersea area that received the eroded material from the Floods is larger than the land area affected by Glacial Lake Missoula and the Floods.

Key Ice Age Floods Interpretive Opportunities

The Cape Disappointment area lacks the sculpted features such as basalt cliffs, scabland features and coulees, that are prominent in other parts of the network and effective in capturing the audience, holding attention and telling the story. The water was moving slower through this area and with less volume and the ocean level is about 300 feet higher today than it was during the Ice Age when the floods occurred. The shoreline was 35 miles further to the west. Regardless of the lack of landforms sculpted by the floods, the viewshed does contain two features associated with the event – the Columbia River and the Pacific Ocean, and specifically, the confluence of the two. Therefore, the story of the transport of materials should be the focal point. The site for telling that story should be one with a clear view of the confluence.

Key Site Parameters and Audience Characteristics

- The story at this location is about the sediments carried into the ocean. The best place to tell the story is at a place where the confluence of the Columbia River and the Pacific Ocean is clearly visible. However, the best sites with such a view are on top of the main headland, and specifically at the Lewis & Clark Interpretive Center which already contains interpretive strategies focusing heavily on the Lewis & Clark Expedition and the cultural history of the area.
- It is possible to see the confluence from other areas accessible to the public, such as Waikiki Beach on the north side of the headland. However, viewing the confluence from the elevated location of the interpretive center is superior to any easily accessible site in the rest of the park.
- This park is one end of the terrestrial pathway of the floods, Missoula being a portal for eastern end. Therefore, this park could be the beginning of a trip retracing the pathway of the floods.
- At the very least, many of the people visiting this park may be traveling along the Columbia River after leaving the park, and may get as far as Portland or Vancouver, where evidence of the floods are more visible.
- This location could also serve simultaneously as an end, a fulfilling finale, to those who followed the route of the floodwaters down current from Missoula or Spokane.
- Physical evidence of the flood does not occur in the area surrounding the park so it is difficult to create a 'hub' at this park. However, it can be considered a portal or starting point to motivate visitors to visit other sites after they leave.
- This site does have the advantage of an indoor facility with a retail outlet. There are more options for interpretive strategies, plus distribution of guidebooks and other strategies for sale can be accommodated.
- Day-use visitation is typically short in duration (<1 hour). Day-use visitors are attracted to scenic views, hiking and the Interpretive Center.
- Locals use the boat launch facility heavily in the fall.
- This is the busiest overnight camping state park in Washington. Most visitors have reservations and are not local to the area and prefer to camp in the Benson Beach Area rather than near the park entrance. Between May and August

between 600-1500 people stay in the park nightly. Queries about the Ice Age Floods are rare. Typically visitors ask about the Lewis and Clark expedition, military history, local flora and fauna and maritime history. Geologically speaking, visitors occasionally inquire about the ancient basalt sea stacks in the park.

- Commercial bus tours arrive about one per week between April and November. Cape Disappointment also operates an internal 18-passenger park shuttle in the summer season with stops at interpretive sites, day-use areas and the campground. Visitors in the winter months are largely retirees, with family groups prevalent in the summer. Visitors from Asia, Eastern Europe, Russia and Germany are not uncommon.

Comments

This is the end of the route for anyone traveling the flood path unless they were then to get in a boat and travel on the Pacific Ocean. This park and the interpretation in it are heavily geared toward cultural history with a current emphasis on Lewis & Clark. As with Columbia Hills, caution should be exercised in providing too many stories in the same place.

Eastern Region Bridgeport State Park

Ice Age Floods Significance

This park is known for its “haystacks,” which are clumps of basalt carried to this point by the ice sheet. This is an excellent place to focus on the role of the Okanogan Lobe from the Cordilleran Ice Sheet in influencing the pathways of the Ice Age Floods.

Key Ice Age Floods Interpretive Opportunities

The two key features available for interpretation are the Columbia River and glacial erratics. This was the route of the river when it was not being dammed by ice. However, at this point it is a lake backed up by Chief Joseph Dam.

Key Parameters and Audience Characteristics

- The site is on Rufus Woods Lake, the body of water created by Chief Joseph Dam.
- Interpretive programs are offered during the summer on a number of topics by the US Army Corps of Engineers.
- This may be a key spot because it was the confluence of the Okanogan Highlands, the Columbia River basalt flows, the Cordilleran Ice Sheet and the Ice Age Floods.
- This site is shown on maps associated with the Ice Age Floods to be outside the area impacted by the floodwaters from Glacial Lake Missoula but covered by the Glacial Lake Columbia flood waters.

Eastern Region Columbia Hills State Park

Ice Age Floods Significance

Lower elevation parts of the park were eroded by the floods, resulting in the formation of prominent scabland features. The presence of significant gravel bars visible on the south side of the Columbia creates an opportunity to include both depositional and erosional impacts of the floods. The site is significant for many other reasons. First, it is situated on the eastern end of the Columbia Gorge, and therefore it has the potential to function as a portal into the Gorge for travelers going west, and a portal into central and eastern Washington for travelers going east. Finally, it is a site with significant cultural resources (such as pictographs and petroglyphs).

Key Ice Age Floods Interpretive Opportunities

The key visuals in this location tie to the story of the formation of scablands – the areas scoured by the Ice Age Floods. From the higher elevations several features across the river can be viewed, including sand dunes and places where floodwaters overflowed the sidewalls of the gorge.

Key Parameters and Audience Characteristics

- The primary interpretive focus for this park is petroglyphs, pictographs and associated Native American culture. The vast majority of visitors go to the specific area in the lower part of the park where they can see the petroglyphs and pictographs. The area also contains interpretive signs relating to the Lewis & Clark story, Native Americans of the area and geology.
- The upper section of the park, north of the highway, has limited development. However, it has good views of the scabland features in the lower section of the park and visual access to features across the river.
- The park has a small campground.
- Although features related to the Ice Age Floods can be seen in the landscape as travelers continue east along the gorge, the next major feature is Wallula Gap, which does not yet have interpretation. The next WSPRC park area with interpretive opportunities (Sacajawea State Park) is near the Tri-Cities.
- The site is at the eastern gateway to the Columbia River Gorge, so it could be used as a portal for people to explore that feature.
- The existing infrastructure is not conducive for a hub or portal type of park. Although it does have a park office where literature is distributed, that facility is small.
- The visitors to this park are interested in short hikes and currently get sent to Horsethief Butte to use social trails.
- Commercial riverboat cruises (Portland to Snake River) disembark at various points along the Columbia and Snake Rivers; some interest was expressed in the past for stopping here for passengers to view the petroglyphs and pictographs. The tour boats currently slow down and stop in the river so passengers can get a view of 'She Who Watches.'
- A Master Plan developed and approved by the WSPRC, recommends developing the park to include expanding the camping area to 50-100 units and developing a group campsite.
- There are several features typical of scablands, such as basalt outcroppings, depressions and bare rock instead of soil. These could be a part of an interpretive trail and/or could be interpreted from a viewpoint along the road into the Dalles Mountain Ranch part of the park.

Comments

With the focus on cultural stories, including Native Americans and Lewis & Clark, perhaps a focus here should be on the impact of the floods on human lifestyles – geo-determinism. The floods had significant impact on subsequent human lifestyles. The event affected the ability to grow crops in many parts of the region – the Willamette Valley, Quincy Basin, the Walla Walla Valley and other areas benefited from the deposit of soil. Other areas, such as the scablands of eastern Washington, became areas where crops were not an option. The floods also carved coulees that became travel and trade corridors, left gravel deposits from which building materials are mined, and created flat ground where towns and cities are built, such as East Wenatchee, Portland and Vancouver. A link to this storyline might be to locate a culturally appropriate legend of this flood from local or regional Native American oral tradition if one exists. Coordination with cultural liaison offices of nearby tribal groups would be needed.

Eastern Region
Columbia Plateau Trail

Ice Age Floods Significance

This 130-mile trail on a railroad right-of-way passes through the heart of scabland formed by the Ice Age Floods. A person using the trail has visual access to many features related to the Ice Age Floods and to the Columbia River basalt flows that set the stage for the impact of the floods.

Key Ice Age Floods Interpretive Opportunities

The trail passes by both erosional and depositional features associated with the Ice Age Floods. In areas around Cheney, floodwaters slowed, dropping some bedload, including large boulders. In other areas, the floodwaters scoured the landscape, leaving behind scabland that now has only a thin layer of soil and sparse vegetation. Many significant features, such as Washtucna Coulee, Devil's Canyon and Lake Sacajawea Bar, are along sections of the trail not yet developed.

Key Parameters

- The northern 23-miles of the trail have already been developed and plans exist to develop the entire trail. At present there are 4 trailheads, each with restrooms and an informational kiosk. The Trail Master Plan calls for 7 additional trailheads, a connector trail to Sacajawea State Park and a connector trail to Spokane. The plan also calls for a visitor center at Kahlotus.
- Unlike the Centennial Trail, this trail passes primarily through a rural landscape that is sparsely populated.
- The developed section of the trail is used by walkers, hikers, cyclists and equestrians, although some of the trail is closed to horses.
- In 2005, over 150,000 visitors utilized the trail.
- Because of the remote nature of the trail, especially away from the access points, a high possibility for vandalism exists.
- Dr. Gene Kiver, retired geology professor from Eastern Washington University, has documented Ice Age Flood features along the trail for possible future interpretation.
- Dr. Bruce Bjornstad has written and published, *On the Trail of the Ice Age Floods – A Geological Field Guide to the Mid-Columbia Basin* (Keokee Books, 2006). The book contains information about features along part of the trail.

*Eastern Region
Crown Point Heritage Area*

Ice Age Floods Significance

This park area is at a key point in the path of the floods. The first Missoula Floods flowed by this point, but later floods were forced out of the ancestral route of the Columbia River at this point due to blockage by the ice sheet, resulting in the formation of the Grand Coulee and Moses Coulee. Later flood waters from Glacial Lake Columbia flowed by this point when the ice sheet retreated.

Key Ice Age Floods Interpretive Opportunities

Crown Point is an excellent place to interpret the role of the ice sheets because the dam is blocking the river in about the same place as the ice sheet. In a sense, Grand Coulee Dam is functioning as the ice lobe did, albeit on a much smaller scale, and the resulting body of water (Lake Roosevelt) is a miniature of Glacial Lake Columbia. The combination provides a good starting point to explaining how and why the Grand Coulee was formed.

Key Parameters

- The site contains an old architectural structure consisting of pillars and a roof. Grand Coulee Dam dominates the view.
- The area has a lot of visitation in the summer when evenings include a light show across the water spilling from the dam.

Comments

Lake Roosevelt is like a miniature of Glacial Lake Columbia and that aspect of geomorphologic history could be interpreted here.

*Eastern Region
Daroga State Park*

Ice Age Floods Significance

The floods had several visible impacts visible from the park or close by, including a large gravel bar on the west side of the river across and just downstream from the park that is likely to be at least partially due to flood waters, current dunes (ripple marks) on a gravel bar north of Daroga, and cliffs along the river canyon. Also, the flood waters, which were 1000 feet deep at this point, were an erosional force that helped shape the river channel and surrounding landscape. This site is along the pathway of the Glacial Lake Columbia Ice Age Floods that came down the Columbia River as opposed to Grand Coulee or Moses Coulee.

Key Ice Age Floods Interpretive Opportunities

The Columbia River, a gravel bar and basalt cliffs are the key visible feature associated with the Ice Age Floods at this site. Floodwaters were 1000 feet deep here.

Key Parameters

- Another geomorphology related feature, Earthquake Point, is directly across the river.
- A large numbers of day and overnight visitors use the park, including boaters.
- The opposite bank contains cliffs comprised of rock that was more resistant to the Ice Age Floods, thus it can be used to compare the role of basalt in the formation of typical Ice Age Floods features.
- The Overnight and Day Use areas are in different locations.

Eastern Region Fort Okanogan State Park

Ice Age Floods Significance

Similar to Bridgeport State Park, this area can be considered both an Ice Age Flood site and an Ice Age site. In terms of the Ice Age Floods, the site was alternately covered by flood waters, covered by ice, and again by flood waters when the ice retreated. It could be used to focus on the role of the ice sheets in the formation of Grand Coulee and Moses Coulee.

Key Ice Age Floods Interpretive Opportunities

Visual access to Columbia River creates the opportunity to focus on the role of the ice sheets in determining the route taken by floodwaters across eastern and central Washington, and the flooding by Glacial Lake Columbia.

Key Parameters

- The site has an interpretive center, dedicated primarily to cultural history.
- Interpretive displays rotate from the Colville Tribe and the Museum of Arts and Culture in Spokane.
- The site has a viewpoint, with interpretive panel, behind the visitor center. The location affords an excellent view both up and down the river, but the trail is not fully accessible.
- This is a significant site in terms of the Euro-American cultural history of the Pacific Northwest in that it was the first permanent settlement in the interior.

Frenchman Coulee

Ice Age Floods Significance

Frenchman Coulee is perhaps the most spectacular Ice Age Floods feature easily reached from Interstate 90, which creates a significant opportunity in terms of reaching a lot of people with the story. The coulee was formed by floodwaters pouring off the Quincy Basin in the drop to the Columbia River. It contains a wide variety of features associated with the event, including a large coulee with spectacular columnar basalt cliffs, dry cataracts, former plunge pools, depositional material, and huge chunks of columnar basalt from the cliff sides that were either torn away by flood waters or tumbled to the coulee floor after the floods. It is also the route of the former Vantage Highway.

Key Ice Age Floods Interpretive Opportunities

The dry cataracts create the opportunity for interpreting a receding flood cataract. The basalt cliffs create the opportunity to tell the story of the role of basalt in evolving the features associated with the Ice Age Floods. The breadth and depth of the coulee presents a good opportunity to focus on the amount of material removed by the floods. The presence of the coulee, a topographic feature shaped by the Ice Age Floods, creates the opportunity to focus on the impact of the floods in evolving new features in the landscape of the area. Finally, because the old East-West highway across the state is routed through the coulee, the story of the role of the floods in carving landscape that in turn dictates how humans use the landscape can be told (geo-determinism).

Key Site Parameters and Audience Characteristics

- The site has a variety of land ownership and management arrangements. Part of area is owned by US Bureau of Reclamation (east of Hilltop Lake area and down by the river); part by WDFW, including the main climbing area; and part by the

Grant County PUD.

- The climbing area is heavily used in the late winter/early spring.
- The area is used for camping; especially overflow camping for people attending events at the Gorge Amphitheater. Camping is now restricted away from columnar basalt.
- The site suffers from some illegal ORV use.
- The site suffers from a significant amount of vandalism, which includes damage to kiosks, garbage cans, toilets, etc. Littering is also a problem.
- The site has Port-A-Potties with regular service but vandalism is an issue.
- WDFW is interested in cooperation with WSPRC but concerned over vandalism of any new installations.
- The site is only minutes from Interstate 90.
- The old highway is located in the coulee, and ends at the Columbia where it used to cross the river.

Eastern Region

Ginkgo Petrified Forest State Park

Ice Age Floods Significance

Ginkgo Petrified Forest is a relatively significant site in terms of the Ice Age Floods Interpretive Network. The site contains or has good visual access to a lot of features associated with the Ice Age Floods, including ice-rafted erratics, bergmounds, and cliffs of Columbia River basalt sculpted by flood waters.

Key Ice Age Floods Interpretive Opportunities

The features visible from the interpretive center – the sheared off cliffs showing the underlying layers of Columbia River basalt flows – create a good opportunity to focus on the story of the Ice Age Floods and the role of the basalt flows in creating the opportunity for the flood waters to carve the features that are visible today. The bergmounds and ice-rafted erratics, both depositional features, create the opportunity to tell the story of the role of downstream constrictions causing flood waters to back up, and the resulting depositional impacts of the floods.

Key Parameters

- Name of the park is Ginkgo Petrified Forest which creates expectations for features and topics for interpretation.
- The park is currently best known for petrified wood. The trees were probably carried down to the site by volcanic mudflows during the eruptions of the Cascade Mountains further west as evidence by the many different species of trees from different ecozones. Once the trees were in place from the mudflows, basalt lava invaded rapidly from the east burying and preserving the trees and setting up the potential for petrification.
- The site, especially the interpretive center, receives very high visitation in part because it is just off I-90, the major east – west transit route across the state, and the major transit route linking Idaho, Montana and Washington.
- Erratics (basaltic and granitic) and other iceberg related features are located throughout the park. Erratics can be seen along interpretive trail that currently focuses on the petrified wood.
- The interpretive center, campground (Wanapum) and interpretive trail are all separated too far for access other than by motorized vehicle or bicycle.
- Frenchman Coulee is located just across the Columbia River from the eastern edge of State Park. The coulee is one of the most spectacular erosional sites associated with the Ice Age Floods.
- The site gets a lot of visitors who are attending evening concerts in the Gorge Amphitheater who have time for day trips.

- The site is 30 miles away from a significant concentration of lodging and dining establishments in Ellensburg.
- The species of the trees that were petrified are indicative of climate change.
- The site is a good location for an auto tour of Ice Age Flood features to the east.

Eastern Region
Wanapum Recreation Area

Ice Age Floods Significance

This site would have been inundated with the floodwaters of the Ice Age Floods.

Key Ice Age Floods Interpretive Opportunities

Wanapum does not contain key features associated with the Ice Age Floods. However, it does have key features visible from the site, including downstream constrictions, such as Sentinel Gap, that would have caused flood waters to back up the Columbia River forming a temporary lake, and basalt cliffs on the east side of the river that were formed by the combination of layers of Columbia River basalt flows and the erosional force of the Ice Age Floods.

Key Parameters

- Many users of this campground are boaters and swimmers.
- The park is on the margin of the transition from the Cascades to the Columbia Basin.
- The park is only a few miles from the Ginkgo Petrified Forest Interpretive Center.
- Wanapum has high visitation and is proximate to a variety of key features associated with the Ice Age Floods, including Frenchman Coulee.

Comment

A major goal of the effort at this park will be to entice visitors to go to the interpretive center at Ginkgo Petrified Forest State Park.

Eastern Region
Lincoln Rock State Park

Ice Age Floods Significance

This site is along the pathway of the floods that came down the Columbia River separate from Grand Coulee or Moses Coulee.

Key Ice Age Floods Interpretive Opportunities

Although the impacts of the Ice Age Floods are not as prominent here as at locations like Frenchman Coulee and Dry Falls, the walls of the canyon were eroded by the flood waters.

Key Parameters

- Lincoln Rock is proximate to a lot of interesting Ice Age Floods features and it does have other intriguing geologic features including Lincoln Rock across the river and Turtle Rock upstream.
- This site has an amphitheater.
- A walkway exists along the edge of the river.
- A proposed trail, the Rocky Reach Trail, will link the park to the 10-Mile Apple Capital Loop Trail and the communities of Wenatchee and East Wenatchee.
- Good views of the Turtle Rock upstream and of the rock walls across the river are available from a point of land in the Day Use Area near the major parking area.

- Many boaters use this area.
- There is a concession facility located near the restrooms in the Day Use Area. The combination of the two probably attracts a lot of people to this specific part of the Day Use Area.

Eastern Region Lyons Ferry

Ice Age Floods Significance

The primary significance of Lyons Ferry in relation to the Ice Age Floods and telling that story is threefold. First, it is located at the confluence of the Snake and Palouse Rivers, with good views up the Palouse Canyon, a feature formed and sculpted by the Ice Age Floods, and good views of a large gravel bar across the Snake. Second, it is along an access route from Walla Walla to Palouse Falls and from the Snake River to Palouse Falls, so it is a point that can be used to market the Palouse Falls experience. Finally, the Snake River canyon was impacted by flood waters. During the Ice Age Floods, floodwaters pooling behind Wallula Gap extended up the Snake, past this point, to Lewiston. Also, the Lake Bonneville Flood flowed down the Snake.

Key Ice Age Floods Interpretive Opportunities

The Palouse Canyon, a feature formed and sculpted by the Ice Age Floods, allows us to tell the story of the impact on the physical landscape and about removal of material. The gravel bar across the river allows us to tell the story of depositional impacts. The basalt cliffs along the canyon walls allow us to tell the story of the erosive force of the floods and the role of basalt flows in forming the iconic features associated with the floods. The Snake River allows us to touch on the impact of Wallula Gap in forming a temporary lake and causing deposition in the Snake, Walla Walla and Yakima River valleys. The fact that the Palouse Canyon was used by Native Americans allows us to tell the story of geo-determinism. The Snake River also allows us to tell the story of the Bonneville Floods.

Key Site Parameters and Audience Characteristics

- This area contains a number of other features that can be interpreted and stories that can be told using those features, including the Marmes Rock Shelter and the story of its discovery and subsequent flooding; Native American use of the area; a historical ferry crossing that provided a key link in the road connection from Fort Benton, Montana to Walla Walla; the existing bridge over the Snake river was built in another location, dismantled, stored and reassembled here; and the building of the dams on the Columbia River and its effect on the land today.
- This area is considered very important by Native Americans.
- A marina is located across the river from the site. Land is owned by USACOE, leased to Port of Columbia and subleased to private concessionaire. Restaurant and store located at marina, but no lodging and no boat rentals. Marina used by hunters, fishers and boaters in family groups; issues in the past with unsupervised and unruly youth.
- Small cruise ships dock in spring and fall bring their visitors ashore for tours of the area, including trips to Palouse Falls.
- The campground currently needs maintenance because it was not operated for a period of time.
- Other attractions in the area include Lyons Ferry Fish Hatchery – built by USACOE in 1982 to compensate for dam-related losses of steelhead and Chinook salmon; Lyons Ferry Bridge originally built in 1927 and used for crossing the Columbia River at Vantage until 1963 when it was dismantled and stored

until 1968 and reassembled to cross the Snake River near the confluence with the Palouse River.

- Park managed by WSPRC until 2002, land owned by (USACOE); leased for 2 years to private concessionaire until 2004; ACOE then operated day use only area in 2005; private concessionaire to operate both day use and campground in 2006.
- Popular place for boating and day use (swimming, fishing, boating – both on Snake and Palouse Rivers, picnics); campground not heavily used due to lack of hookups and summer heat – campground open March – October in the past, used by families, hunters and fishermen.
- Informal interpretive programs on Saturday nights were offered in the past by WSPRC rangers with an attendance of 10-20 people
- Campground used by families, generally Caucasian, some day use for fishing by Hispanic families; use dropped off dramatically once school started. Used by retirees during the shoulder season.
- Trail from parking area to viewpoint overlooking flooded Marmes Rock Shelter is being removed along with shelter, and this piece of land is reverting to tribal interests. Land will be used to repatriate human remains and protect grave sites and most likely will not be appropriate for visitor access or interpretation without consultation with tribal interests.
- Passengers from tour boats disembark in the gravel parking area at the upstream end of the park to take a tour to Palouse Falls.

Eastern Region Maryhill State Park

Ice Age Floods Significance

This site would have been inundated during the deepest Ice Age Floods but does not prominently exhibit the scabland features that dominate Columbia Hills State Park.

Key Ice Age Floods Interpretive Opportunities

The key opportunities relate to visuals of the Columbia River and the basalt cliffs across the river. The cliffs of columnar basalt were sculpted when the Ice Age Floods swept through this area, eroding the hillsides on either side of the river. The demarcation line indicating the height of the erosion by the floods along this stretch of the Columbia River is discernible if a person knows what to look for on the landscape.

Key Parameters and Audience Characteristics

- According to park staff, camping picks up in March and the campground is full throughout the summer. Many windsurfers are attracted when the wind is blowing strong and also a lot of boaters. The Day Use area is busy on the summer weekends for family reunions.
- According to park staff, a lot of visitors are families and retired couples.
- From a location perspective, the site is adjacent to Highway 97 as it crosses from Oregon to Washington, and visitors must pass through scablands either on the Oregon side or Washington side to reach or leave this site.
- This park is outside the official boundaries of the Columbia Gorge National Scenic Area and so is not subject to the regulations regarding visual impact on viewsheds.
- A visitor information center operated by Klickitat County is located at the junction of the park road and the highway.

Comments

This is a minor site for its features, but a good place to capture people because it is a campground and Day Use area. The campground is a good place to function as a secondary hub – to excite people about taking an interpretive tour of the surrounding area, which includes Maryhill Museum, the Columbia Gorge Discovery Center (across the bridge and back to The Dalles), a replica of Stonehenge (a World War I memorial), the Columbia Gorge Interpretive Center at Stevenson and Columbia Hills State Park. There is a nearby existing overlook along Highway 14 that already has interpretive panels on a variety of topics. The advantage of reaching people at this site is that it won't matter if they turn east or west on Highway 14; they still would have been exposed to the story and will know where else they can go for more information.

Eastern Region***Palouse Falls State Park******Ice Age Floods Significance***

This feature is one of the icons of the Ice Age Floods, and arguably one of the top 5 topographic features associated with the event. It is probably one of the two most significant sites under the jurisdiction of the WSPRC. The Ice Age Floods had a number of impacts on topographic features, including shaping existing features and creating new ones. Palouse Falls and the channel up and downstream from the falls are examples of new features created by the floods. Gravity causes water to seek its lowest point thus floodwaters took short cuts when the opportunity arose. The floodwaters in this area left the existing drainage patterns (the Palouse River in Washtucna Coulee) and continued their southerly movement across the plateau, eventually carving a new route including the spectacular canyon that heads at Palouse Falls.

Key Ice Age Floods Interpretive Opportunities

The topographic features in the viewshed at this site create a number of interpretive opportunities. The exposed basalt layers can be used to tell the story of the Columbia River basalt flows that were a key factor in the formation of the features carved by the flood waters; the waters could easily pluck out columnar basalt blocks, erode the base rock and cause undercutting of the rock formations. The downstream canyon, with its exposed basalt cliffs, can be used to tell the story of erosion by the floods, and how high that erosion occurred. The falls and the rock formations at the top can be used to talk about the erosional effects of flood waters, how they scoured the land and eroded less-resistant rock faster than other rock. The falls can also be used to tell the story of receding cataracts as the floodwaters plucked basalt from the base and eroded back in the direction from which the water flowed. The tectonic cracks and flood-carved loess hills can be used to talk about the interrelationship of the floods to other geomorphologic forces that affected the landscape, and that affected the pathway of the floods. Finally, the surrounding environment and associated flora and fauna can be used to tell the story of long-term impacts of the event in terms of dictating, to some extent, what could grow in an area that had been scoured of topsoil. Since wildlife depends on habitat, the effect on vegetation also had an effect on the rest of the biota that live in this ecosystem.

Key Parameters and Audience Characteristics

- The site is a significant distance (37 miles) from any major highway, with the last short stretch of road on gravel. (The road is not under the jurisdiction of the WSPRC.)
- The infrastructure at the park is dated and not up to ADA standards.

- The access roads to this site pass by a number of features related to the Ice Age Floods. It is a good site to be included on or the focal point of an auto tour and be included in a tour of the countryside from Walla Walla.
- The park is known for rattlesnakes in the summer.
- The park has experienced significant visitation by Hispanic families and groups for fishing purposes.
- Commercial bus tours, sometimes 2 buses a day and 3 times per week, come in August - October. During the peak late summer season there is a minimum of 3 buses per week. Buses currently pick up passengers off of tour boats from Lyons Ferry and bring them to park where the rangers give a short talk.
- Visitors express some interest in the Ice Age Floods story. They ask for a copy of geology article on the kiosk but park staff cannot keep it stocked.
- The park has a one-page handout on the geologic history of the State Park and an Indian legend on how it was formed.
- Visitors want more locations to hike from the park. Some hike to the Pinnacles area above the falls on social (not official) trails. There are some concerns about safety.
- Visitors complain about the access road and consider it dangerous and difficult. The road produces lots of dust and dirt in summer. It is graded once a week but cannot be kept smooth with that level of maintenance.
- The park is near the Marmes Rock Shelter site located closer to Lyons Ferry (USACOE).
- New exterior interpretive panels focusing on the Ice Age Floods will be installed in 2006-7.

Comments

This has the potential to be a primary site for interpreting the Ice Age Floods. That potential can be realized quicker with a few modifications, such as upgrading the infrastructure and perhaps re-designing the layout to accommodate the type of traffic it receives or could receive. Specifically, the parking area could be re-designed so it is easier for buses to let visitors off, pick them up and park. The trail and viewpoint adjacent to the parking area could be upgraded, as could the trail to the upper viewpoint. The latter trail could be re-designed as a series of switchbacks so it is ADA compliant and has the potential to be used as an interpretive trail with a series of stops. Finally, a staging area near the parking area, in the shade, with benches could be developed to accommodate bus tours. The upgrades combined with programs offered by rangers may allow the State Parks to charge for providing interpretation to bus tours.

Eastern Region Potholes State Park

Ice Age Floods Significance

This park is significant for several reasons. First, because of wind-blown sand that created dunes and depressions. The loose wind-blown sand that created dunes and depressions of the Moses Lake area was drawn from the wind reworking the sandy Ice Age Flood deposits that filled the Quincy Basin. The wind shaped the sand into typical crescent-shaped sand dunes. Moses Lake is one of the few natural lakes in eastern Washington that does not flood a scabland basin. Water collecting in the depressions between the dunes formed what have been termed 'potholes' although they are not true potholes of the type created by moving water. When O'Sullivan Dam was built, many of the dunes were inundated. Second, because the path of Columbia was just east of park when the Okanogan Lobe blocked the ancestral route of the Columbia, forcing the flood waters south, where they sculpted and flowed down the Grand Coulee. Third, the park is situated in the midst of significant features associated with the Ice Age Floods, including Lind

Coulee, ice-rafted erratics, and the Drumheller Channels, one of the most spectacular scabland tracts of the Ice Age Floods. One issue involving interpretation in the park is that the sand dunes are most visible in the north end of the park, but the public access is at the south end.

Key Ice Age Floods Interpretive Opportunities

Key interpretive opportunities must connect to visible features. In this location, there are no really good interpretive opportunities in the areas of this park visited by most people because the sand dunes are in the north part of the park and the primary visitor facilities are in the south. However, the Drumheller Channels (Columbia National Wildlife Refuge - US Fish and Wildlife Service), one of the most spectacular scabland tracts associated with the Ice Age Floods, are just to the south. These highly eroded channels illustrate the tremendous power and force of the Ice Age Floods.

Key Parameters and Audience Characteristics

- No features associated with the Ice Age Floods are clearly visible from the main areas of visitor concentration in the park.
- The park does not currently have a good place to sell publications.
- The key features in the area, the Drumheller Channels are not in the park but to the south of the park.
- This is a good 'hub' for exploring the surrounding area, which has exceptional features. There are ice-rafted erratics along the roadway to the west, Drumheller Channels to the south, potholes to the north, and Lind Coulee along the eastern margin. All these could be highlighted on a loop auto tour through the area developed in partnership with State Parks.
- Boaters use the area a lot.
- The entryway to the park has an area for distributing brochures.
- In the spring, the visitors come primarily for fishing. In the summer, they come primarily for fishing, water sports and to sunbathe.

Eastern Region Riverside State Park

Ice Age Floods Significance

This park occupies high areas that provide a good view of the pathway of the floods on their way through the Spokane area. The Spokane area is the point where floodwaters encountered a much steeper gradient - from 9 feet per mile along the Spokane River to 25-30 feet per mile due to tilting of the lava beds. The increase in gradient meant increased speed and more erosional force. As a consequence, scablands begin to appear just south of the city. The floodwaters split into three parts in approximately this area with one part continuing along the Spokane River, another heading south-southwest, through the Cheney area and down the Palouse drainage and a third part going down the Crab Creek drainage.

Key Ice Age Floods Interpretive Opportunities

The most compelling feature along the route is the Bowl and Pitcher in the Spokane River. The feature is a result of basalt flows covering the area on top of the Latah Formation. The Ice Age Floods eroded the Latah Formation to undercut the basalt, causing huge chunks of the rock to fall into the river valley. Basalt cliffs prominently displaying columnar basalt provide the opportunity for interpreting the basalt flows that set the stage for sculpting by the Ice Age Floods, and then the role of the floods in shearing off the basalt to create the cliffs.

Key Parameters

- The park receives over 3 million visitors a year, but most are Day Users and repeat visitors.
- Riverside does not have easy access to and from I-90.
- Spokane is a key Hub Community. It is the portal to the State of Washington for travelers coming from the east and a portal to Idaho and Montana for travelers from the west.
- This is the best point to access sites in Idaho, including the interpretive displays at the dam in Cabinet Gorge and the interpretive opportunities in Farragut State Park (Idaho).
- The park has 2 campgrounds – a primitive campground, one with hookups and 2 large group camps that are used by various kinds of groups (students, church, youth, etc.)
- Most campers stay 2-3 nights and then depart.
- The park has an interpretive program in summer months with local speakers.
- Some local bus tours use the park for the day, such as senior outings.
- Most visitors use the park for day visits.
- Although some areas receive more use than others, it is a large park with a variety of features.
- The park contains the Little Spokane Natural Area, an area managed for nature observation, bird watching and low impact recreation. The area has restricted uses for preservation purposes.
- The area has an equestrian area.
- The Centennial Trail runs through the park.
- The Spokane House Interpretive Center, with exhibits focused on cultural history, is located in the park, but not in the area most heavily used.
- The park has a small contact station at the campground that currently sells maps and booklets.

Eastern Region Centennial Trail

Ice Age Floods Significance

Similar to the Columbia Plateau Trail, the Centennial Trail passes through areas impacted by the Ice Age Floods, including the Spokane Valley and Rathdrum Prairie where the floods deposited gravels as the water slowed in the broad valleys.

Key Ice Age Floods Interpretive Opportunities

The specific feature related to the floods, other than general shaping of the landscape, is the Bowl and Pitcher within Riverside State Park. This feature is actually due to a combination of events, including basalt flowing over and into the Latah Formation, which was unstable material, and the Ice Age Floods waters eroding the unstable material and undercutting the basalt blocks, causing them to fall into the valley floor. From high points within the park a visitor can view the pathway of the floods as they came through the Spokane area. Erosion in the Spokane River is in part due to the floods but in a greater amount to erosion in subsequent years.

Key Parameters

- The use of the trail is primarily by activity-oriented recreational day users, including cyclists, runners, hikers, walkers, skateboarders, equestrians and roller-bladers. Most are residents of the area.
- The trail is consistently used by return visitors, mostly from the Spokane area and region.
- Many users get information about the trail from the local Convention and Visitors Bureau in downtown Spokane.
- The trail passes through Riverside State Park.

- Because of the heavy use of this trail, it may be a good idea to use as a 'recruitment area' that encourages visitors to check out other Ice Age Flood opportunities.
- This is a 39-mile trail from the Spokane River in Riverside State Park to the Idaho border. Sections of the trail make use of existing roadways. Some of the other parts of the trail are paved and some not.
- For much of the length, the trail contains places where users can stop and rest, such as the benches in Riverside State Park and the benches in Riverfront Park in Spokane. This creates the opportunity to provide interpretive information at sites where someone using the trail is likely to stop and rest or just take in the view.
- The trail has numerous trailheads.
- The trail passes through Riverfront Park in downtown Spokane, a park heavily used by residents and visitors. An overlook adjacent to the trail in Riverfront Park overlooks the falls on the Spokane River.

Eastern Region Sacajawea State Park

Ice Age Floods Significance

The park is at the confluence of the Snake and Columbia Rivers, and is likely sitting on top of bedload deposited by the Ice Age Floods, overlain by later sediment deposited by the two rivers. This is the closest WSPRC property to Wallula Gap, which was the bottleneck that caused a temporary lake (Glacial Lake Lewis) to form over the Pasco Basin. However, the Gap cannot be seen from this site.

Key Ice Age Floods Interpretive Opportunities

The line of the Horse Heaven Hills can be used to focus on the barriers that caused the flood waters to flow to Wallula Gap. The rounded hills in the viewshed would have been islands in the floods, so the height of the flood and its tremendous depth of water can be pointed out from the site.

Key Parameters

- Maya Lin, designer of the Vietnam War Memorial in Washington D.C. is designing an installation at Sacajawea State Park as one of seven sites along the Columbia River commemorating the Lewis and Clark Expedition and honoring the native cultures that made it possible. At Sacajawea State Park, she will inscribe a day's Lewis and Clark Journal entry on dock planks. She also plans a nearby compass pointing to tribal homelands, showing size and how many days away by foot, then and now. It will be important to coordinate storylines in the park to avoid visitor confusion.
- Although this site would have been underwater during a flood event, there is no visible evidence of the Ice Age Floods at this site.
- This is a heavily used park so information at this site could reach a lot of people.
- The site is close to the main highway from Tri-Cities to Walla Walla and could be a starting point or a stop along the way for a loop auto tour encompassing Lyons Ferry, Palouse Falls, Washtucna Coulee and numerous other features associated with Ice Age Floods.
- The site contains a staffed indoor interpretive facility. It would be possible to sell guidebooks and other non-fixed strategies associated with the Ice Age Floods install an exhibit in the facility.
- A regional bike trail, the Sacajawea Heritage Trail, connects Pasco, Kennewick and Richland to the park.
- Four boats dock at the park and visitors tour the Visitor Center and gift shop.

Comments

This is not a prime site for telling the flood story. However, this site gets a lot of visitation, and is positioned well to guide people on a loop auto tour that included Palouse Falls State Park, Lyons Ferry Park and other sites in the area.

Eastern Region Steamboat Rock State Park

Ice Age Floods Significance

The rock is an erosional remnant and at one time would have separated two cataracts of a waterfall in the upper coulee. The top of Steamboat Rock exhibits evidence of a variety of different geomorphologic events. It is formed by basalt flows, has glacial erratics and moraines from the ice sheet, and a coulee from the Ice Age Floods.

Interpretive Opportunities

With the height of the rock and breadth of the coulee, the amount of sediment gouged out by the waters can be interpreted. Also, the contrast between the granitic rock upstream and the basalt cliffs is a good opportunity to focus on the role the basalt played in creating the features evident today. This is also the point where Ice Age Flood waters came into the coulee from Northrup Canyon. The variety of features in Northrup Canyon creates an opportunity to focus on the erosional and depositional impacts of the flood waters.

Key Parameters and Audience Characteristics

- An amphitheater is planned for an area near the Day Use Area.
- The Day Use Area has good views of Steamboat Rock, the basalt cliffs of the Coulee and granitic rock upstream.
- The park has a large number of overnight sites and is heavily used in the summer.
- To enter and leave the park, a visitor travels through Grand Coulee. Thus it is a good place to provide auto tour information for people going north or south.
- Northrup Canyon Natural Area has an existing parking area, restroom and trail.
- A lot of people hike the trail to the top of Steamboat Rock, but it is not an easy trail.
- Boaters are major users of the park.
- A playground was recently constructed in the Day Use Area so it is unlikely WSPRC would be willing to build a new interpretive playground in the foreseeable future.
- A new campground is planned for the open space between the two camping areas.

Eastern Region Sun Lakes-Dry Falls State Park

Ice Age Floods Significance

This site, at the head of the lower Grand Coulee, is within one of the major features created by the Ice Age Floods.

Key Ice Age Floods Interpretive Opportunities

From this place, a visitor has spectacular views of the surrounding columnar basalt that comprises the coulee walls. This view also provides a good perspective for understanding the amount of material eroded away by the floods. The site also has access to a number of significant Ice Age Floods features, including the base of Dry Falls and excellent examples of 'potholes.' Finally, because of the combination of a resort, a campground, Camp Delaney and the Day Use Area, Sun Lakes can have over 1000 people at any given time in the park.

Key Parameters and Audience Characteristics

- The Dry Falls Interpretive Center is just up at the top of the grade.
- An amphitheater is being planned for this park.
- Camp Delaney, a rustic group retreat center within Sun Lakes-Dry Falls State Park, is managed by the WSPRC.
- A major regional resort operated by a concessionaire is within the park.
- The park is heavily used for overnight use. With the large number of campsites, interpretive opportunities in the park could reach a lot of people.
- A playground was recently constructed in the Day Use Area so it is unlikely WSPRC would be willing to build a new interpretive playground in the foreseeable future.

Eastern Region

Dry Falls Interpretive Center

Ice Age Floods Significance

Dry Falls is perhaps the most significant and spectacular site in terms of the Ice Age Floods. If water were running over this cataract, it would be 10 times the size of Niagara Falls.

Key Ice Age Floods Interpretive Opportunities

The features create good opportunities to tell a wide variety of stories associated with the floods. For example, the dry falls create the opportunity for interpreting a receding waterfall; the basalt cliffs create the opportunity to tell the story of the role of basalt in forming the features associated with the Ice Age Floods; the breadth and depth of the coulee at this point also creates a good opportunity to focus on the amount of material removed by the floods; and the presence of the Grand Coulee, a topographic feature created by the Ice Age Floods, creates the opportunity to focus on the impact of the floods in altering the landscape and influencing how people use the land.

Key Parameters and Audience Characteristics

- Many believe the building is visually obtrusive and not well designed or laid out for interpretive strategies.
- The parking area is close to the wall along the edge, making it difficult to put interpretive panels in that location.
- The rockwork is historic, built by the Civilian Conservation Corps. It includes the wall along the edge, a small shelter at the north end of the parking area and a very popular viewpoint that extends out from the small shelter.
- The parking area is not huge, no overflow parking exists, and the restrooms have limited stalls, thus it may not be appropriate to hold people at this site at this time.
- The site is used by bus tours, including tours of Japanese visitors who come with a language interpreter. According to the staff, they are often traveling from Portland or Seattle to Spokane and on a schedule that has them needing to get to Spokane in time for dinner. Many times they only stop to use the facilities. The park staff's talks and answers to questions are translated through the tour director.
- This site experiences a big increase in visitation at certain times of recreational activity in the rest of the park (i.e. when fishing season first opens and on subsequent weekends the visitor center experiences a lot of visitation in the afternoons).
- School groups tour in spring. Often some teacher prep beforehand. Most groups just show up – some book a tour.
- There is heavy visitation in summer during weekends and heavy weekend use during fishing season (April – May – especially weekends). According to staff, 50% of the visitors are probably repeat users who bring back family and friends.

- Those visitors who use campgrounds are recreation-oriented (hiking, diving, swimming, motor craft). 20-30% of visitors stay all week in the summers.
- Kids have a prehistoric interest - ("Were there dinosaurs here?")
- Repeat visitors complain about old exhibits - nothing new.
- Interpretation is limited when the visitor center is closed.
- Organized tours for seniors use the site.
- In the summer of 2005, themed (geology) bus tours were noticed at the park using videos purchased from the park to show on the buses.
- New exterior interpretive panels focusing on the Ice Age Floods will be installed in 2006-7.

Eastern Region Lake Lenore Caves

Ice Age Floods Significance

The caves were formed by the force of the floods eroding columnar basalt. However, there is some disagreement among specialists as to whether the flood waters were coming over the lip of the coulee or flowing down the coulee.

Key Ice Age Floods Interpretive Opportunities

The caves provide the opportunity to focus on the process by which the floodwaters formed caves; the tilted rock surfaces in Lake Lenore, visible from this site, create the opportunity to focus on other forces that had impact on the geomorphology of the area, and on the influence of those forces on the pathway of the floods and erosion by the flood waters; the use of the caves provides a good opportunity to focus on geo-determinism, the role topography and geology play in dictating human use of an area.

Key Parameters

- The caves are accessed by a stairway and a trail along a shelf of rock.
- The existing sign has been vandalized (shot) but replacement is scheduled for 2006.
- The parking area is less than a half-mile off the main highway and has a good, somewhat elevated view, of the bottom of the lower Grand Coulee where a number of tilted basalt blocks or remnants protrude out of the lake.
- Nearby this area, the remains of a prehistoric rhino were discovered.
- The Coulee Corridor Scenic Byway Steering Committee has begun development of a Watchable Wildlife site using grant funds in cooperation with Washington State Parks. Developments include a fully accessible trail from the lower parking area to a point of land on the lake and interpretive panels on the trail. It also includes a flat area off the upper parking area that will be used for interpretive panels. Plans call for continuing the trail to the upper parking area, and connecting the two parking areas with a trail.

Eastern Region Wenatchee Confluence State Park

Ice Age Floods Significance

The Wenatchee area was at the margin of the flood during much of the Ice Age Floods history. Ice Age Floods features are visible from the site, the most significant of which is probably Pangborn Bar on which East Wenatchee is built.

Key Ice Age Floods Interpretive Opportunities

Pangborn Bar, a large gravel bar formed by the floods, is visible across the river. It has ripple marks and was also the site of an early camp of Clovis people, thus it can be used to tell the story of impacts due to deposition and the story of geodeterminism. From the beach area at the east end of the park (Day Use Area) a visitor can view the Columbia River, which was the pathway of the floodwaters. The height of the flood can be also be communicated using features visible on hillsides to the south. The significance of the site is not so much in features as in location. Greater Wenatchee has a very large array of features related to the Ice Age Floods, so the community is well positioned to be a 'Gateway' community for visitors who want to explore the story. With that in mind, the park can become a hub for exploration by those visiting or staying overnight.

Key Parameters and Audience Characteristics

- The site has a large number of overnight sites and is heavily used in the summer, which means interpretive opportunities have the potential to reach a large number of people.
- The park has no amphitheater.
- The site has interpretive kiosks adjacent to the main parking areas in the Day Use Area.
- The best site for viewing Ice Age Flood features is at the Day Use Area, which is located at the east end of the park. It is likely that overnight visitors may not visit the Day Use Area and therefore would not encounter interpretive opportunities in that location.
- The site is adjacent to Apple Capital Loop Trail, a regional bike trail that crosses the river and accesses a nature area with interpretation. This regional pathway connects to the rest of the city and both sides of the river.
- An Ice Age Floods auto tour brochure exists for the Wenatchee area.
- One of the major features associated with the event, Moses Coulee (managed by the Bureau of Land Management and the Nature Conservancy), is located a few miles to the south.
- A lot of volunteers could be recruited from the Wenatchee area.
- Pangborn Bar, the land base on which East Wenatchee is built and a feature left by the Ice Age Floods, also contains a Clovis archeological site.
- Visitors in the late fall and early spring are mainly retired couples, primarily living in RVs. Summer use includes families who camp and family reunions.
- Winter users include retirees and weekend users that ski at Mission Ridge.
- Park staff are seeing an increase in users who are Asian and Ukrainian.
- Day Use is primarily families and groups.
- Use by ethnicity is estimated at 70% Caucasian and 25% Hispanic and 5% other. This use pattern may revert back to the previous 50-50 Caucasian/Hispanic visitation patterns now that the Day Use Fee is eliminated.
- The park is used heavily for special recreation events in the area, such as youth sport tournaments, weekly softball tourneys, Community festivals.
- Visitor questions are primarily about amenities or things to do. Very few questions are asked regarding any natural history.

Appendix D.

Summary of Recommended Interpretive Strategies

Introduction

The following section contains an overview of every park included in this project. Information for each park contains the following:

Ice Age Floods Significance

This is a brief paragraph noting the significance of the site in terms of the event or in terms of telling the story.

Key Ice Age Floods Interpretive Opportunities

In general, people become more interested in a subject when they can see something related to it, and they are more likely to believe what they can see than what they only hear or read. Therefore, the more an interpretive program connects with and uses actual artifacts or features in conveying information, the more effective the program will be. The inventory of opportunities within the context of interpretive planning focuses on inventorying artifacts and features available for use in the interpretive program in order to develop a story based on what visitors can see or experience. In this case, the focus is on features associated with the Ice Age Floods.

Key Parameters and Unique Audience Characteristics

These are site-specific characteristics or characteristics unique to audiences who come to this site that potentially affect the interpretive strategies at this park.

Comments

This includes any additional points that affected the array of strategies being considered.

State Park or site*

	STORY POINT LEVEL	STARTING POINT LEVEL	AUDIO LISTENING POSTS	EVENTS	PARK/AREA GUIDE	BOATER'S GUIDE	GUIDED TOURS	DISTRIBUTION CENTER	FLOOD HEIGHT FINDER	INTERIOR EXHIBITS	ORIENTATION PANEL	INTERPRETIVE PANEL SETS	INTERPRETIVE TALKS	PLAYGROUND	INTERPRETIVE TRAIL	VISITOR CENTER
Beacon Rock SP	1	1		*				*	*		*	**	*		*	
Bridgeport SP	2	2		*					*			*	*		*	
Cape Disappointment SP	2	2		*				*		*		*	*			
Columbia Hills SP	1	1		*		*	*	*	*	*	*	**	*		*	*
Columbia Plateau Trail	1	2		*	*		*	*		*	*	**	*		*	
Crown Point Heritage Area	1	2		*				*		*	*	*	*			
Daroga SP	2	2		*		*		*			*	*	*			
Fort Okanogan SP	2	2		*				*	*	*		*				
Frenchman Coulee	1			*	*		*									
Ginkgo Petrified Forest SP	1	1	*	*			*	*	*	*	*	**	*		**	
Wanapum Recreation Area	2	1		*		*		*	*		*	*	*		*	
Lincoln Rock SP	2	1		*		*		*	*		*	*	*	*		
Lyons Ferry	1	2		*		*		*		*	*	**				
Maryhill SP	2	2		*		*		*	*		*	*	*			
Palouse Falls SP	1	2		*			*	*		*	*	**	*		*	
Potholes SP	2	2		*	*	*		*			*	*	*		*	
Riverside SP	2	1		*	*			*	*		*	**	*			
Centennial Trail	2	2		*	*		*	*		*	*	*	*		*	
Sacajawea SP	2	2		*		*		*	*	*	*	*	*			
Steamboat Rock SP	1	1		*	*	*	*	*		*	*	**	*		**	
Sun Lakes - Dry Falls SP	1	1		*	*	*	*	*	*	*	*	**	*		*	
Dry Falls	1	1	*	*		*		*	*	*	*	**	*		*	*
Lake Lenore Caves	2	2		*				*			*					
Wenatchee Confluence SP	2	1		*	*	*	*	*	*		*	*	*	*		

KEY

Strategies

- * = One Item Recommended
- ** = Multiple Items Recommended

Story/Starting Point Level

- 1 = Primary
- 2 = Secondary

* Note: Mount Spokane and Yakima Sportsman State Parks are not included in this matrix as specific media recommendations were not developed because they were not part of the original contract.