



Foundation Document Overview

Ice Age Floods National Geologic Trail

Montana, Idaho, Washington, and Oregon



Photo by Justin Miller

Contact Information

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Purpose

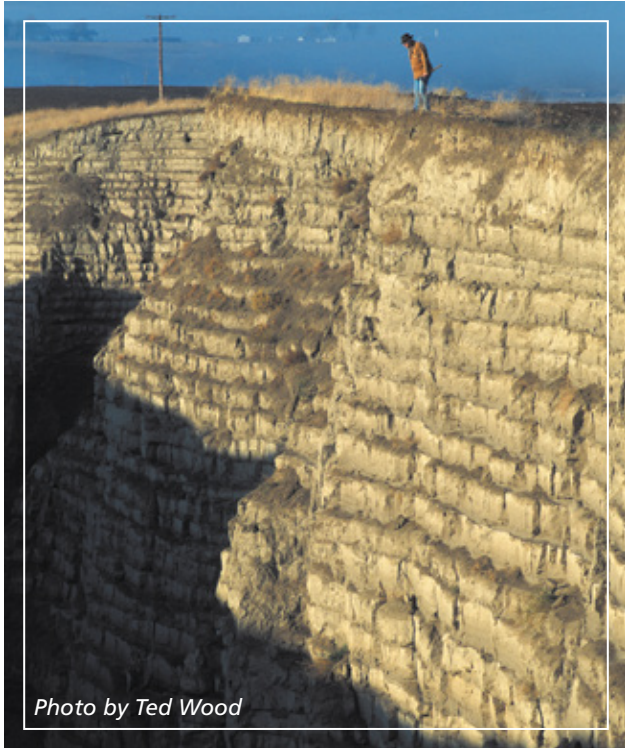


Photo by Ted Wood

The ICE AGE FLOODS NATIONAL GEOLOGIC TRAIL tells the stories of the cataclysmic Ice Age floods and invites people to discover and explore the resulting extraordinary landscapes and distinctive features. Interpretation, research, and stewardship are achieved through collaboration between public and private partners.

Significance

Significance statements express why Ice Age Floods National Geologic Trail resources and values are important enough to merit national park unit designation. Statements of significance describe why an area is important within a global, national, regional, and systemwide context. These statements are linked to the purpose of the park unit, and are supported by data, research, and consensus. Significance statements describe the distinctive nature of the park and inform management decisions, focusing efforts on preserving and protecting the most important resources and values of the park unit.

- **Cataclysmic Ice Age Floods.** Ice Age Floods National Geologic Trail represents the greatest floods on earth. Repeated cataclysmic releases of water exploding from glacially dammed Lake Missoula thundered across the landscape to the Pacific Ocean, carrying water, debris, rock, and ice with a discharge equal to 10 times the flow from all of today's rivers worldwide.
- **Distinctive Geologic Resources.** The Ice Age floods sculpted extraordinary landscapes and left behind a variety of distinctive geologic features across a vast area of the northwestern United States. Gigantic basalt coulees, enormous dry falls, and flood ripples of immense proportion are just a few examples of the evidence that survives to illustrate the scale and power of the floods.
- **Science and Research.** The discovery and investigation of the Channeled Scabland led to an understanding of cataclysmic origin that challenged prevailing geologic thought. Ongoing research has established the Ice Age floods as the quintessential example of megaflood landscapes throughout the world.
- **Human Settlement and Use.** The Ice Age floods transformed the environment of the northwestern United States, greatly influencing the use of the land and its resources from early native peoples to contemporary society.



Fundamental Resources and Values

Fundamental resources and values are those features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to merit primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance.

- **Outstanding Floods-Related Geologic Resources**
- **Exceptional Scenery and Views**
- **Scientific Knowledge and Research**



Ice Age Floods National Geologic Trail contains other resources and values that may not be fundamental to the purpose and significance of the park, but are important to consider in management and planning decisions. These are referred to as other important resources and values.

- **Floods-Related Cultural Resources, including traditional knowledge and accounts of the flood events**
- **Access to Diverse Recreational and Educational Opportunities**



Interpretive Themes

Interpretive themes are often described as the key stories or concepts that visitors should understand after visiting a park—they define the most important ideas or concepts communicated to visitors about a park unit. Themes are derived from—and should reflect—park purpose, significance, resources, and values. The set of interpretive themes is complete when it provides the structure necessary for park staff to develop opportunities for visitors to explore and relate to all of the park significances and fundamental resources and values.

- **Geologic Setting.** A remarkable alignment of past geologic forces, resulting terrain, and Ice Age conditions produced a series of some of the greatest floods on earth, dramatically sculpting 16,000 square miles of the northwestern United States and as much of the Pacific Ocean floor.
- **Cataclysmic versus Incremental.** The Ice Age floods remind us that the slow, incremental processes shaping our earth can be punctuated by sudden, epic, cataclysmic events, and that such events are possible in our lifetimes.
- **Evidence that Remains.** In the wake of the floods, a wide array of floods-formed features remained, just waiting for human curiosity to discover. Some features are gigantic – readily visible from space; others are subtle—only revealed and appreciated through close observation.
- **In Search of the Truth.** Unraveling the mysteries of the Ice Age floods reveals the human, often subjective and sometimes contentious, side of the scientific method that arises when new evidence challenges prevailing paradigms.
- **Lives and Livelihoods.** Just as the Ice Age floods left an enduring mark on the landscape of the northwestern United States, so too has that landscape profoundly shaped human history and culture across the region. The impact of the floods continues to this day.



Description

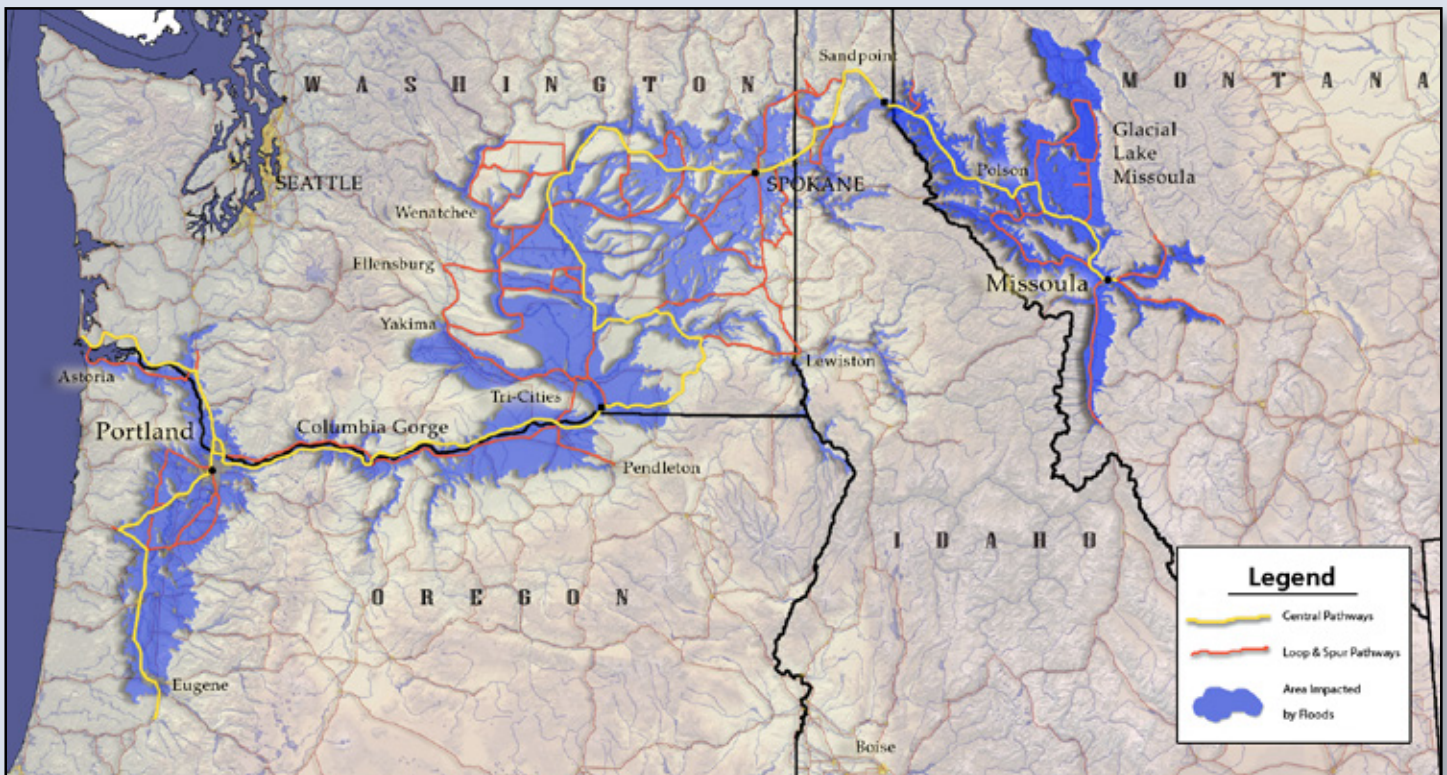
“At the end of the last Ice Age, some 12,000 to 17,000 years ago, a series of cataclysmic floods occurred in what is now the northwest region of the United States, leaving a lasting mark of dramatic and distinguishing features on the landscape of parts of the States of Montana, Idaho, Washington, and Oregon.”

Public Law 111-11, March 30, 2009

Congress established the Ice Age Floods National Geologic Trail with this opening paragraph. The federal trail system already includes national historic, recreational, and scenic trails; however, this national geologic trail is the first of its kind. While in some ways similar to a national historic trail, the geologic trail commemorates our nation’s natural history rather than historic people or events. In 2001, the National Park Service, in collaboration with public landowners and the nonprofit Ice Age Floods Institute, completed a study recommending federal recognition of the area in order to tell the comprehensive story of the Ice Age floods. Since then, momentum has built within the communities of the floods region, culminating in Public Law 111-11, which designated the national geologic trail.

The national geologic trail commemorates a dramatic series of events. Toward the end of the last Ice Age, a lobe of the Cordilleran ice sheet formed a dam that blocked the Clark Fork River, creating a massive lake 200 miles long and up to 2,000 feet deep. The ice dam broke catastrophically, and Glacial Lake Missoula, which contained more than 500 cubic miles of water, drained within a matter of days. An enormous flood of water, ice, and debris charged westward along established drainages and across dry land, covering 16,000 square miles. Eventually, the flood waters reached the Pacific Ocean and continued hundreds of miles beyond the shoreline. This process happened many times, each time carving and reshaping the land.

Today, evidence of the immense floods remains in many forms including high water lines, huge current dunes, boulders transported hundreds of miles, giant coulees and dry falls, and enormous gravel bars. These reminders of the floods exist on public and private lands across the four states of Montana, Idaho, Washington, and Oregon. Many of the most dramatic features are managed by federal, tribal, state, and local governments.



Map adapted from *Ice Age Floods Study of Alternatives and Environmental Assessment*, February 2011, prepared for the National Park Service by Jones & Jones Architects and Landscape Architects.