

## Attachment 1

### DETERMINATION OF NO IMPAIRMENT

#### Emergency Action to Temporarily Relocate the Enchanted Valley Chalet for the Protection of the East Fork Quinault River

The prohibition against impairment originates in the National Park Service (NPS) Organic Act, which directs that the NPS shall:

*...Promote and regulate the use of the...national parks...which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them **unimpaired** for the enjoyment of future generations.*

According to NPS Management Policies, an action constitutes an impairment when its impact “would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values” (NPS 2006, sec. 1.4.5). To determine impairment, the NPS must evaluate “the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts” (NPS 2006, sec. 1.4.5).

National park system units vary based on their enabling legislation, natural and cultural resources present, and park missions; likewise, the activities appropriate for each park and for areas in each park also vary. For example, an action found appropriate in one area administered by the NPS could impair resources in another park. As stated in the NPS Management Policies 2006 (NPS 2006, sec. 1.4.5), an impact on any park resource or value may constitute an impairment, but an impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is,

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; or
- key to the natural or cultural integrity of the park; or
- identified as a goal in the park’s General Management Plan or other relevant NPS planning documents.

The NPS has issued interim *Guidance for Impairment Determinations in NPS NEPA Documents (Interim Guidance)* (NPS 2010). The Interim Guidance states that a written impairment determination must be completed the NPS selected alternative. Impairment findings are not required for visitor experience, socioeconomics, public health and safety, environmental justice, land use, or park operations, because impairment findings relate back to park resources and values identified in the *NPS Organic Act*.

In evaluating whether or not the NPS selected Alternative would result in impairment, the responsible NPS manager must provide: a brief description of the condition of the resource;

whether the resource is necessary to fulfill the purposes for which the park was established; whether the resource is key to the natural or cultural integrity of the park or to the opportunity for enjoyment of the park; whether the resource is identified as a significant resource in the park's planning documents; and a discussion of why the action will or will not result in impairment of the resource including a discussion of the context, severity, duration and timing of any impacts, and any mitigation measures, if applicable.

The resource impact topics carried forward and analyzed for the Emergency Action to Temporarily Relocate the Enchanted Valley Chalet for the Protection of the East Fork Quinault River Environmental Assessment selected action are: soils, vegetation, fish and wildlife, threatened and endangered species, water resources, soundscapes, wilderness character, and cultural resources.

### **Soils**

The soils in the project area are generally unconsolidated and weakly developed. Most of the surface geology at the project site consists of thick, recent alluvial deposits typical of an active floodplain. Within the East Fork Quinault River, the streambed is composed mostly of gravel to cobble-sized material, with some sand and silt.

Under the selected action, the soils within the project area would be adversely affected due to the short-term use of steel beams to relocate the structure; potential long-term (potentially more than one year) placement of a portion of the steel beams (or other material) to provide a temporary structural foundation after relocation; and increased human foot-traffic and stock use. Best management practices would be implemented to avoid or minimize the potential for project-related impacts during implementation, but due to the extent of activities necessary to carry out the selected action, there would be local, short- and long-term minor to moderate adverse impacts due to soil disturbance and compaction, alteration of topsoil, and potential for erosion. However, these impacts would not result in wide-spread impacts that would impair the ability of the NPS to achieve the mandate and purpose for the park as established by the 1938 enabling legislation (Act of June 29, 1938, 35 Stat. 2247) and associated House Report (House Report 2247, April 28, 1938).

Because the extent and intensity of disturbance is limited to the project area, and best management practices would be implemented to avoid or reduce most impacts, soils would not be impaired.

### **Vegetation**

The Enchanted Valley area is within the lowland/montane vegetation zones. The dividing line between these zones is 2000 feet elevation above sea level. This corresponds to the elevation of the chalet. The valley was formed by moraine deposits. The flat topography is a result of a shallow lake which formed when the moraine dammed the Quinault River.

The grassy meadow vegetation is comprised of both native and non-native grasses and herbs with scattered red alder (*Alnus rubra*) and bigleaf maple (*Acer macrophyllum*). The surrounding forest contains Douglas-fir (*Pseudotsuga menziesii*), western red-cedar (*Thuja plicata*), and western hemlock (*Tsuga heterophylla*) along with scattered Sitka spruce (*Picea sitchensis*). The

valley walls have Alaska yellow cedar (*Chamaecyparis nootkatensis*) on the cliff bands. Understory is comprised of moist-site shrubs and ferns including evergreen huckleberry (*Vaccinium* sp.), vine maple (*Acer circinatum*), devil's club (*Oplopanax horridus*), sword fern (*Polystichum munitum*), deer fern (*Blechnum spicant*), and lady fern (*Athyrium filix-femina*). There are numerous moss, lichen, and liverwort species.

There are no known occurrences of federal- or state-listed rare, sensitive, or threatened plants.

The selected action would result in the removal and trampling of vegetation from increased human foot-traffic and stock use during project implementation, including equipment delivery, placement, and long-term use of the steel beams to provide a foundation for the structure once it's moved. No trees would be removed, though one stump may be shortened for clearance of the structure. Best management practices would be implemented to avoid or minimize the potential for project-related impacts during implementation, but due to the extent of activities necessary to carry out the selected action, there would be local, short- and long-term negligible to minor, adverse effects on vegetation.

Because the extent and intensity of disturbance is limited to the project area, and best management practices would be implemented to avoid or reduce most impacts, vegetation would not be impaired.

## **Fish and Wildlife**

### **Fish**

The mainstem Quinault River, as well as numerous side channels and tributaries, provide excellent spawning and rearing areas for salmonids and other native fish. Fish species known to inhabit the East Fork Quinault River in Enchanted Valley include rainbow/steelhead trout, bull trout (ESA listed), and Dolly Varden. This is one of the few locations in their range where bull trout and Dolly Varden are observed together. Numerous other fish species inhabit the river below Enchanted Valley, including Chinook salmon (both spring and fall populations), coho salmon, sockeye salmon, and cutthroat trout. A complete list of fish species observed in the river is maintained by the Olympic National Park fisheries staff and can be obtained by contacting park headquarters.

### **Wildlife**

Mammals commonly seen in the Quinault area include Roosevelt elk, black-tailed deer, black bear, raccoon, spotted skunk, Douglas squirrel, beaver and snowshoe hare. Less common, but regularly present, are coyote, mountain lion, and bobcat. Smaller, less conspicuous or nocturnal mammals are numerous. Conspicuous birds in the area include great blue heron, osprey, Steller's jay, kingfisher, water ouzel (dipper), crow, raven, varied thrush, robin, winter wren and several warblers, woodpeckers, kinglets, and sparrows.

Protection of wildlife and wildlife habitat is included in both the park's enabling legislation and in the park significance statements. Although fish and fish habitat are not specifically identified within the park's enabling legislation, they may be considered to be within the scope of "other

wildlife indigenous to the area.” Native wildlife and wildlife habitat is key to the natural integrity of Olympic National Park.

Implementation of the selected action would result in some temporary displacement of wildlife due to increased presence of people and pack stock as well as from noise disturbance from short-term helicopter use. There may also be some negligible habitat modification such as fine riverbank sediments being displaced into the river.

Because the surrounding park lands provide alternate habitat area, and because conservation measures would be implemented to avoid or reduce many project-related impacts, these disturbances would not affect the biological integrity of wildlife or wildlife habitat within Olympic National Park. No wildlife fatality is expected to result from the implementation of the selected action. Because of these reasons, wildlife resources would not be impaired.

### **Threatened and Endangered Species**

Federally-listed threatened species that are potentially located within or near the project area include bull trout (*Salvelinus confluentus*), marbled murrelet (*Brachyramphus marmoratus*), and northern spotted owl (*Strix occidentalis caurina*).

#### **Bull Trout**

Bull trout occur year-round in the Quinault River Basin. In November 1999, the U.S. Fish and Wildlife Service designated threatened status for bull trout, and, in 2005, designated the Quinault, East Fork Quinault, and North Fork Quinault as critical habitat for bull trout.

The decline of bull trout is primarily due to habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, past fisheries management practices, and the introduction of non-native species.

#### **Spotted Owls**

Suitable habitat for northern spotted owl must provide for the nesting, roosting, and foraging needs of the bird as well as for dispersal. Suitable habitat is characterized by moderate to high canopy closures (60-80%); a multi-layered, multi-species canopy with large (>30” dbh) overstory trees; a high incidence of large trees with various deformities, cavities, broken tops, or mistletoe infestation; large snags; large accumulations of down trees and other woody debris on the ground; and sufficient open space below the canopy for owls to fly (Thomas et al. 1990).

Because of extensive habitat loss throughout much of western Washington, the Olympic Peninsula population of spotted owls is effectively isolated from birds occurring in the Cascades and the Oregon Coast Range. Spotted owls are resident throughout ONP. The spotted owl sites most affected by barred owl expansion have been those positioned on lower elevation slopes and river terraces.

The potential staging area for the helicopter, Bunch Field, is an unlikely area for spotted owls to occur based on landscape position as well as habitat. Westside floodplain areas at low elevations typically are occupied by barred owls, which exclude spotted owls from these sites. Barred owls have been documented in the forest adjacent to Bunch Field. The forest type within several

hundred meters of Bunch Field is alder with scattered large conifers which is not a suitable nesting or roosting habitat for spotted owls in this area.

The breeding season for spotted owls is divided into early and late periods. The early breeding season of northern spotted owls is March 1 through July 15; while the late breeding season is July 16 through September 30.

### Marbled Murrelet

The murrelet is a seabird that nests in old growth forests. Murrelets nest on large limbs (greater than six inches in diameter) at heights 50 feet or greater above the ground. They may also nest in smaller trees if thick moss or deformity creates a platform that is effectively large enough. Suitable nesting habitat for the marbled murrelet is generally thought of as typical old growth coniferous stands (multi-storied with moderate to high canopy closure) within approximately 50 miles of saltwater feeding areas. In the Pacific Northwest, most nests are located on a large branch with a moss substrate and canopy cover over the nest. Murrelets will nest in younger stands with remnant large trees or deformities that provide nesting opportunities.

Olympic National Park contains the largest contiguous area of marbled murrelet nesting habitat remaining in the lower 48 states. There are approximately 402,785 acres of forested area below 3,000 feet elevation within the park. Based on surveys conducted within the park (1997-1999), it is possible that up to 100% of that habitat could have murrelets present during nesting season, with about 83% of nesting habitat classified as occupied.

Suitable habitat in the area of Bunch Field has not been surveyed, however it has been determined that both the Graves Creek and the North Fork campgrounds were occupied by murrelets in the late 1990s.

Similar to spotted owls, the breeding season for murrelets is divided into early and late periods. The early breeding season is April 1 through August 5; while the late breeding season is August 6 through September 15.

As a subset of indigenous wildlife, threatened and endangered species are considered to be included within the scope of the park's enabling legislation. They are identified in the park's significance statement as being residents of the park's old-growth temperate rainforests. These species are key to the natural integrity of the park.

Implementation of the selected action would occur in a manner that avoids or minimizes impacts to listed species to the greatest extent possible. The best management practices and appropriate mitigation measures are identified in the 2008 General Management Plan and Biological Opinion. These include using a Type III helicopter, restricting helicopter operations to the limited operating periods (>2 hours after sunrise to <2 hours before sunset), and identifying the helicopter staging area and flight path to be located greater than 120 yards from murrelet or owl habitat. Any additional conservation measures identified through consultation with the U.S. Fish and Wildlife Service would also be implemented.

Project actions would result in negative, site-specific and local, short- and long-term to temporary, negligible to minor impacts due to increased human and stock presence and noise disturbance. However, due to the mitigation measures described above, the project would not harm individual birds or the integrity of suitable habitat. As such, it would not result in impairment to threatened and endangered species or habitat.

### **Water Resources**

The Quinault River drains from the glaciated Olympic Mountains in northwest Washington State, with a total drainage area above the outlet of Lake Quinault of 264 square miles. About 11 miles upstream from the inlet to Lake Quinault, the North Fork and East Fork Quinault rivers join together to form the Quinault River. Enchanted Valley is located on the East Fork Quinault River, approximately 18 miles upstream of the fork, and has a drainage area of approximately 90 square miles.

In the Quinault drainage, precipitation amounts increase with elevation. Near sea level, average annual precipitation is over 130 inches. At the Graves Creek Ranger Station, the average annual precipitation is 146 inches. In the lower elevations, precipitation typically comes in the form of rain. Winter storms can average three inches of rain in a 24-hour period.

### **Water Quality**

Water quality in the Quinault River drainage within ONP is excellent, with virtually no human-induced water pollution. The Quinault River and its tributaries are classified by the Washington Department of Ecology as Class AA waters, signifying “extraordinary” quality.

Overall, the Quinault River has relatively low concentrations of dissolved and suspended sediment loads, nutrients and organics. However, the East Fork Quinault River near the headwaters of the basin is strongly influenced by snow melt and glacial run-off. Upstream of the Enchanted Valley, summer flows may be clouded by glacial silt. During low flow periods, the river immediately upstream of the valley runs sub-surface for nearly 500 meters through the run-out of a historic debris torrent before reemerging free of sediment.

Suspended sediment concentrations throughout the Quinault River Basin may be periodically elevated during high flow events due to bedload mobilization and bank erosion associated with natural shifts in the river channel. Below Graves Creek, the natural water quality regime may be further affected by stream bank alterations intended to protect infrastructure, residential development, logging, and agricultural practices.

The western side of the Olympic Peninsula is notorious for its steep, unstable slopes and heavy winter precipitation, resulting in winter and spring high water events that cause high amounts of natural siltation in streams. During the wet season, water quality suffers only from naturally occurring processes such as erosion or streambank avulsions.

Natural fluvial processes within the channel migration zone create river bars and sloughs on an annual basis. The upper watershed is steep and deeply eroded. It carries high sediment loads from the natural mass wasting that occurs in the upper watershed.

### Floodplains

Although the 100-year floodplain has not been mapped in the upper Quinault Valley, it is evident that the Enchanted Valley is within the active floodplain of the Quinault River. The Quinault River is continually reworking the floodplain within Enchanted Valley. Recent flows have been unpredictable and shifting through the valley. The catastrophic channel shifting (avulsion) of the East Fork Quinault River in the vicinity of the chalet is the result of extreme sediment loading in the upper basin, and not from a single, catastrophic event (such as a debris flow). For reasons not yet understood, the entire upper watershed has “unraveled,” with loss of most of the previous in-channel vegetation and its ability to store sediment, and associated recruitment of huge amounts of large trees from eroded stream banks.

As a result, there is an “outwash plain” of sediment and downed trees from upriver of the chalet to above the confluence of Anderson Creek and the upper Quinault River. The presence of large, downed wood in the channel creates areas susceptible to sudden channel shifting during high stream flows, and a plethora of sediment (forming terraces in excess of 20 feet in places) provide ideal conditions for new channels to be excavated. When the channel suddenly shifts during high flows, and a new channel is created, copious amounts of sediment are released downstream, propagating further channel instability and movement down valley.

### Wetlands

There are three upper perennial riverine wetlands on unconsolidated shore that are seasonally flooded; two palustrine wetlands on unconsolidated bottom that are semipermanently flooded; and one palustrine freshwater forested/shrub wetland. (See Appendix G)

Water resources are not specifically identified in the enabling legislation for Olympic National Park. The GMP included eight “significance statements.” The significance statement that best captures the water resource values of the park is, “Olympic National Park contains some of the last remaining undisturbed, contiguous aquatic habitat throughout the range of several west coast fish species. The park protects 12 major river basins, more than 3,500 miles of rivers and streams within 13 watersheds, more than 300 high mountain lakes, and two large lowland lakes. The park also supports more than 70 unique stocks of Pacific salmonids, 29 freshwater fish species, and two endemic fish species.” Wetlands are also not specifically identified in either the park’s enabling legislation or in the park significance statements, although they are among the many “ecosystems protected within Olympic National Park containing a unique array of habitats and life forms...” Wetlands are key to natural integrity.

The East Fork Quinault River is one of the rivers referenced in the significance statement above. The federally-threatened bull trout resides in this river. As such, the East Fork Quinault River is a key resource that supports the natural integrity of the park, including significant biological resources.

Under the selected action, the adverse impacts associated with water resources would mainly occur within the floodplain. These actions include trampling and removal of vegetation due to increased human foot traffic and stock use and the temporary placement of the chalet in a new portion of the floodplain. There could be short-term, negligible impacts on water quality from the use of an environmentally-safe lubricant (such as soap) that would be utilized to assist in

reducing friction from the structure while being pulled onto the steel beams during relocation activities. Best management practices would be implemented to avoid or minimize the potential for project-related impacts during project implementation.

Because these impacts would not result in a loss in the integrity of the park's water resources, including floodplains, wetlands, and hydrologic processes and water quality, implementation of the selected action, as described in the EA, would not impair water resources.

### **Soundscapes**

Soundscape is defined as the natural ambient sound conditions. Natural ambient sound is sound absent human presence. Ambient sound in general would include those sounds expected from nature plus sounds due to the presence of humans. Ambient sound, including natural sounds, as found in Enchanted Valley include the noise of visitors on trails and camping, wildlife sounds, including birds and elk, and the sounds of wind, snow, and rain.

Natural quiet is the absence of any discernable noise source (especially manmade). It is important to the feeling of solitude. Natural ambient quiet allows visitors to enjoy the intermittent sounds of nature. Based on the location's susceptibility to wind, proximity to vegetation and water sources, the ambient sound levels can vary drastically throughout the valley. In general, 10-20 decibels is the average level of noise experiences by visitors in the wilderness regions of Olympic National Park. The sound of human voices, creaking packs, pots and pans, and crunching of gravel can raise the noise level to peak levels of 50 or 60 decibels on a very intermittent basis. Extremely low ambient levels of sound means that visitors to remote sections of the park are likely to hear aircraft, even if aircraft sound levels are low.

Soundscapes are not identified in the enabling legislation or the park's significance statements, although natural quiet and sounds are a key factor that contributes to the natural integrity of the park and visitor enjoyment.

Implementation of the project would result in adverse, localized, short-term, minor to moderate impacts to soundscapes during project implementation. While the project area is located in designated wilderness, the additional impacts proposed would not affect the integrity of soundscapes in the long-term, and would not result in impairment.

### **Wilderness Character**

A total of 876,669 acres, or about 95% of the park, was designated by Congress and signed into law as the "Olympic Wilderness" on November 16, 1988. The Olympic Wilderness is exceptionally diverse with glacier-covered mountains, subalpine lakes and meadows, heavily forested river valleys, and ocean coastline.

The Graves Creek Trailhead is a wilderness entry point and provides access to the Enchanted Valley, which is located approximately 13 miles up the East Fork Quinault River from the trailhead.



Wilderness resources are identified in the park's wilderness designation legislation and park's significance statements. Wilderness character is a key factor that contributes to the natural integrity of the park and visitor enjoyment.

Implementation of the project would result in adverse, localized, short-term, minor to moderate impacts to wilderness character during project implementation. While the project area is located in designated wilderness, the additional impacts proposed would not affect the integrity of wilderness character in the long-term, and would not result in impairment.

### **Cultural Resources (historic structures, archeological resources, ethnographic resources)**

#### Historic Structure:

The Enchanted Valley Chalet is located 13 miles up the East Fork Quinault River from Graves Creek Trailhead (see Appendix A in the EA), at approximately 2030 feet (619 meters) elevation (see Appendix B in the EA), within the Congressionally-designated Olympic Wilderness (designated in 1988). The two and a half story, 42' x 28' structure (see Appendix C in the EA) was built in 1930-31 by the Olympic Recreation Company (see Appendix D in the EA), operated as a commercial business until 1943, and was used briefly as an Aircraft Warning Station for World War II. The chalet was purchased by the National Park Service in 1951, and had formerly been used for administrative purposes. In 2007 the chalet was added to the National Register of Historic Places due to its local significance.

#### Archeological Resources:

In the fall of 2002 OLYM archeologists recorded an archeological site directly associated with the historic Enchanted Valley Chalet. The site area as defined in 2002 encompasses the chalet and three archeological features identified at that time.

The features, labeled loci 1-3 (see Appendix H in the EA) include two possible structure locations and a historical debris scatter. A metal detector was used to define the location and extent of these loci. Excavation or evaluation was not completed.

Loci 1 and 2 are thought to be related to two historic structures noted in early photos of the area. These may have been shelters, storage buildings, or living quarters associated with construction of the chalet. Locus 3 was recorded as two adjacent rock-lined depressions located about 50 feet southwest of the chalet. A metal detector indicated the presence of numerous metal artifacts within the depression. This is thought to have been used as a trash dump for the chalet.

Channel migration of the East Fork Quinault River since 2002 has completely eroded all three of these features. The documentation associated with the archeological site form is all that remains. Locus 3, the possible refuse dump, was visited in 2012 by the park archeologist. At that time a number of historic period artifacts were observed along with more recent debris. It is thought that the refuse pit includes artifacts dating from the use of the chalet as a lodge along with material deposited through the years by campers and NPS employees. A small, unsystematic sample of material from the refuse dump was collected by backcountry rangers as the feature began to erode into the river. This collection has not been formally analyzed.

What remains of the archeological site today includes the chalet and a small part of the meadow to the east and southeast of the building. It is unlikely that additional intact archeological remains exist at the site. There may be artifacts that are currently beneath the structure but it seems unlikely that intact, buried deposits exist.

Because of the dynamic nature of the East Fork Quinault River there appears to be very little potential for intact, pre-contact archeological resources in the valley. Small scale archeological survey projects associated with park operations in the area have not turned up pre-contact materials. While ethnographic and oral history data clearly speak to the use of the Quinault Valley throughout the pre-contact period, it is unlikely that sites in the Enchanted Valley would be preserved, though possible that isolated pre-contact artifacts could be located in the valley.

#### Ethnographic Resources:

The Queets and Quinault Indian tribes first inhabited the Lake Quinault area. The tribes established fishing and hunting villages on the shores of the lake and river that were in place for thousands of years. In the 1859 treaty, the Quinault Indian Reservation was created. The Quinault Indian Nation currently monitors for the health of the drainage, which supports their downstream fisheries.

Cultural resources are not identified in the park's enabling legislation or wilderness designation legislation, and they are referenced in the park's significance statements.

The selected action has the potential to result in an adverse effect to this historic property during project implementation, although the selected action would not alter the Enchanted Valley Chalet to the extent that it is no longer eligible for the National Register of Historic Places, and as such, this resource would not be impaired. The selected action has only beneficial effects on archeological resources, and would have short-term, minor, adverse effects on traditional use and access only during project implementation, and therefore these resources would not be impaired.

#### **Conclusion**

In conclusion, the selected action would not result in any direct, indirect, or cumulative impacts to park resources or values that would constitute "Impairment," a violation of the NPS Organic Act.