

# HAT CREEK PLANNING UNIT

## Pit-McCloud River Watershed

### Existing Conditions & Uses

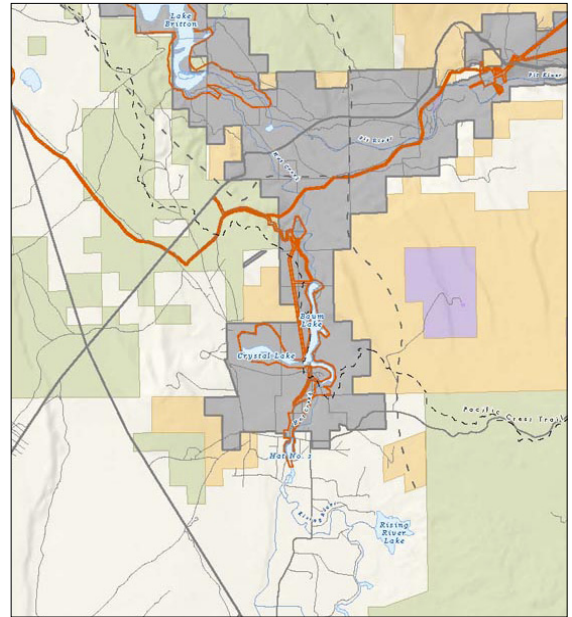
#### Overview

- Two small lakes and Hat Creek corridor that contain valuable biological and recreational resources
- 3,208 acres in Shasta County; 2,745 acres outside the FERC boundary and 463 acres inside the FERC boundary
- Comprises the Hat Creek Project (FERC #2661), New License issued November 2002

As shown in Figure PM-7, the Hat Creek Planning Unit is located in Shasta County in and around the town of Cassel. The planning unit includes several waterbodies including Cassel Pond, Hat Creek #1 Forebay, Baum Lake, Crystal Lake, Hat Creek, and Hat Creek #1 Canal. The planning unit contains lands that are part of the Hat Creek FERC Project (#2661) as well as hydropower infrastructure such as the Hat Creek #1 and 2 Powerhouses and associated penstocks, dams, canals, flumes, and intakes. The planning unit is primarily surrounded by BLM and private land, as well as USFS land in the northwest corner of the planning unit. In addition, the DFG leases land for the Crystal Lake State Fish Hatchery.



Crystal Lake



Hat Creek Planning Unit  
Shasta County

#### Fish, Plant, and Wildlife Habitat

There is substantial diverse riparian habitat within the Hat Creek Planning Unit. The habitat resources are used by a variety of waterfowl, raptors, and aquatic species including great blue heron, osprey, bald eagle, bank swallow, Shasta crayfish, hardhead, bigeye marbled sculpin, and rough sculpin. Waterfowl and other birds use the fresh water emergent wetland habitat and waterbodies for nesting, wintering, and staging. Bald eagles nest near Hat Creek and forage throughout the planning unit. The adjacent nesting territory is one of the most productive bald eagle nesting territories in the State and has been chosen to contribute nestlings for the San Francisco Zoo captive breeding program and Catalina Island reintroduction project in four different years.

Wild trout are abundant in Hat Creek and Crystal Lake. The portion of Hat Creek from Hat Creek #2 Powerhouse (north of Baum Lake) downstream to the fish barrier dam (located in the Lake Britton Planning Unit) is a DFG-designated Wild Trout stream known for its excellent wild rainbow and brown trout fisheries. The New License for the Hat Creek Project provided several biological resource enhancements and management plans.<sup>1</sup>

**1 TMU: 644 Timbered Acres**

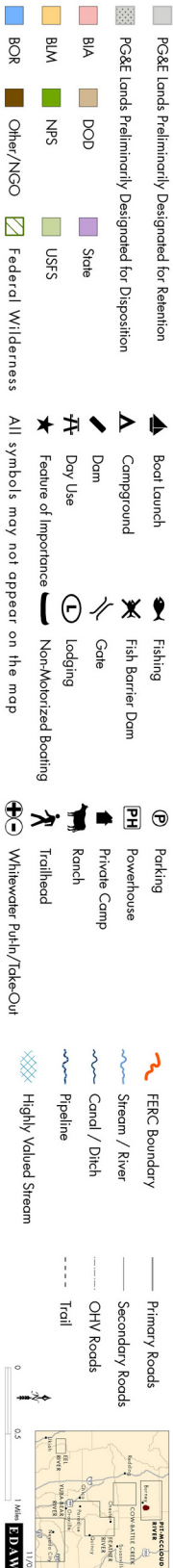
**FERC Project: Hat Creek (#2661)**

**3,208 Total Acres (3,081 acres land)**

**463 Acres Within FERC (14%)**

The map displays the project area in Shasta County, California, adjacent to Lassen National Forest. Key features include:

- HAT CREEK #1 FOREBAY**: A large water body with several fish icons.
- CASSEL**: A small town or settlement near the forebay.
- HAT CREEK #1 CANAL FISHING ACCESS**: Located south of Caspell.
- CRYSTAL LAKE STATE FISH HATCHERY (LEASE)**: Situated east of the forebay.
- CINDER FLATS WILDLIFE AREA**: A purple-shaded area to the east.
- Dfg DESIGNATED WILD TROUT STREAM**: A stream flowing through the area.
- CARBON BRIDGE FISHING ACCESS**: Located further east along the stream.
- LAKES**: Includes Crystal Lake, Rising Lake, and others.
- ROADS**: Highway 299 and local roads like Caspell Rd and Carbon Rd are shown.



FINAL NOVEMBER 2007



# HAT CREEK PLANNING UNIT

## Pit-McCloud River Watershed

### Open Space

The Hat Creek Planning Unit contains open space throughout the planning unit as development is limited to a few scattered recreation facilities. The Shasta County General Plan recognizes that rivers, creeks and associated riparian corridors, and floodplains within the county are major open space resources. This planning unit also provides open space for the town of Cassel and contains viewshed for the Cassel Fall River Road, a primary local thoroughfare.

### Outdoor Recreation

Recreation use at Hat Creek is primarily associated with fishing and hunting, though camping, hiking, and wildlife watching also occur in the planning unit. Fishing, in particular, is popular throughout the planning unit. Hunting, mostly for ducks, occurs around Crystal Lake. The Cassel Campground includes ADA-compliant campsites and is very popular, receiving substantial use during the recreation season. Boating (non-motorized, electric trolling motor boats only) primarily occurs at Baum Lake as boating is prohibited at many other areas in the planning unit.<sup>2</sup>

The Pacific Crest Trail runs through the planning unit, primarily along the west shore of Baum Lake. Due to the outstanding habitat, there are ample opportunities for wildlife viewing throughout the planning unit, particularly at Baum and Crystal Lakes. Many of the recreation sites have been recently enhanced, and a Recreation Management Plan (Shasta crayfish) and Public Access Management Plan were developed according to the New License Order.

### Forest Resources

The planning unit has minor forestry resources and there has been only one timber sale for this area in the last 20 years. The area has scattered second-growth Jeffrey and ponderosa pine stands with no plantations or late seral stage stands. The

PG&E Timber Management Unit (TMU) for Hat Creek consists of 644 acres of timber, and current PG&E management activities are restricted to mitigating for watershed and forest health issues, including emergency salvage harvesting following insect attack or a catastrophic event. Salvage harvesting operations were last conducted in the early 1990s to remove dead and dying trees, the result of a large disease outbreak. Hazard trees are also occasionally removed from recreation areas.

### Agricultural Uses

In the 1800s the site was a dairy farm and since then sustained heavy grazing use under two grazing leases that nearly encompassed the entire planning unit. Grazing was eliminated in 2001 due to impacts to cultural resources, as well as erosive impacts to the shoreline of Baum and Crystal Lakes, and the east side of Hat Creek downstream of Hat Creek #2 Powerhouse.

### Historic Resources

The Hat Creek Planning Unit is within the Pit River Tribe's ancestral territory. There are 15 recorded archaeological sites within the Hat Creek Project cultural resource study area (all lands within the FERC boundary). These sites include midden areas, housepit depressions, lithic scatters, milling stations, historic Baum Powerhouse, historic Camp 1 remains and



American white pelican on Baum Lake

# HAT CREEK PLANNING UNIT

## Pit-McCloud River Watershed



Kayaking on Baum Lake

caretaker's house, an historic can scatter, and historic rock alignments/post piles and artifacts. One ethnographic site is located within the planning unit – an important salmon fishing area (the only legal Native American spearfish site in California). In addition, there are other important places to Native Americans including prayer sites and a large meadow where members of the Illmawi band of the Pit River Tribe are said to have taken refuge from nearby Mt. Lassen eruptions.

All components of the Hat Creek Hydroelectric Project were found to be eligible on the NRHP as an historic district. PG&E has taken efforts to manage cultural sites as prescribed by the Hat Creek Cultural Resources Management Plan (CRMP) by eliminating grazing use, capping areas, bouldering roads, and providing parking areas to prevent damage to sites from vehicle or pedestrian use.

### Stewardship Council Recommendations

The Stewardship Council recommends that the land and land uses at Hat Creek be preserved and enhanced by focusing on biological and cultural resource values as well as popular recreation resources. In presenting the Recommended Concept provided here, our objective is to preserve and enhance cultural and important plant and wildlife resources, as well as enhance

educational opportunities and sustainable forestry management.

**Objective: Preserve and enhance biological and cultural resources while enhancing educational opportunities, the recreation experience, and sustainable forestry management.**

As shown on Table PM-4, The Stewardship Council has identified a number of preservation and/or enhancement measures that may contribute to the conservation management program for the Hat Creek Planning Unit. Additional detail and background regarding these potential measures can be found in the Supporting Analysis for Recommendations, provided under separate cover. These measures are intended to be illustrative in nature, not prescriptive, and will be amended, deleted, or augmented over time in coordination with future land owners and managers to best meet the objective for this planning unit.

### Fish, Plant, and Wildlife Habitat

**Objective: Preserve and enhance habitat in order to protect special biological resources.**

The Hat Creek Planning Unit offers a variety of habitats for both native terrestrial and aquatic



Hat Creek near Carbon Bridge Fishing Access



# HAT CREEK PLANNING UNIT

## Pit-McCloud River Watershed

species, including many special status species. In order to preserve and enhance the habitat and resources found here, the Stewardship Council recommends that baseline studies and plans be developed to gain a clear understanding of the resources at Hat Creek. These studies will likely be followed by management plans to ensure implementation of preservation and enhancement measures for specific resources. Management of the property to preserve and enhance habitat will also include addressing noxious weeds, damage from muskrats, and restoration of hydrologic function in two creeks.

The Stewardship Council also recommends improving bald eagle nesting and perching habitat, supporting Shasta Crayfish restoration efforts, and reducing habitat fragmentation through OHV road restoration and removal of unnecessary fencing. The Stewardship Council encourages close coordination with the Shasta Crayfish Technical Review Committee and other resource-focused organizations working in the region. All planning should be considered in conjunction with fuels and forest management plans as well as relevant FERC license required plans.

### Open Space

**Objective: Preserve open space in order to protect natural and cultural resources, viewsheds, and the recreation setting.**

This concept would preserve open space values by limiting development to minor recreation enhancements, as well as through permanent conservation easements. Conservation easements would describe all prohibited uses to maintain open space values, including the level of uses allowed. This concept includes habitat restoration with little development and is therefore not expected to decrease the scenic quality of the viewsheds.



Fishing in Cassel Pond

### Outdoor Recreation

**Objective: Enhance recreational facilities in order to provide additional educational opportunities and enhance the recreation experience.**

The Hat Creek Planning Unit provides many recreation opportunities and receives year-round recreation use. As shown in Figure PM-8, the Stewardship Council looks to enhance these opportunities by providing interpretive signage to educate visitors on the valuable natural resources within the planning unit. We recommend enhancements focus on interpretive signage along the Pacific Crest Trail, improvements to fishing-related signage, increased opportunities for youth education and recreation, and providing minimal additional day use facilities.



Emergent wetland habitat near Crystal Lake

# HAT CREEK PLANNING UNIT

## Pit-McCloud River Watershed

### Sustainable Forestry

**Objective: Develop and implement forestry practices in order to contribute to a sustainable forest, preserve and enhance habitat, as well as to ensure appropriate fuel load and fire management.**

The forestlands of the Hat Creek Planning Unit provide valuable habitat and are located adjacent to the community of Cassel. The Stewardship Council recommends that future care and management of the property include developing a long-term vision for forest management in the area, which addresses silvicultural practices, holistic watershed management, fuels management, and fire management and response. The fire management and response, fuels, and forest management plans should be developed in conjunction with the noxious weed and wildlife and habitat management plans. We expect that all of these plans would be developed in conjunction with adjacent landowners, DFG, BLM, and USFS management and practices as appropriate.

### Preservation of Historic Values

**Objective: Identify and manage cultural resources in order to ensure their protection.**

Various prehistoric and historic cultural resources are known to be present within the

planning unit, and there is a high likelihood that additional cultural resources are present. The Stewardship Council aims to support an increased understanding of these resources and ensure they are appropriately protected. To meet this objective, we recommend that cultural resource studies be conducted to understand the resources found at Hat Creek (particularly outside the FERC cultural resource study area where less information is available) and that appropriate management plans be developed and implemented. Throughout this effort, the Stewardship Council recommends close coordination with Native American entities. Development of the cultural resources management plan should be consistent with the Hat Creek Project CRMP.

### Endnotes

<sup>1</sup> New License Order habitat measures include flushing flows, gravel augmentation, fish monitoring, monitoring and protection of Shasta crayfish, bank swallow protection, and development of a Final Hat Creek Bald Eagle Nesting Territory Management Plan.

<sup>2</sup> In relicensing, the area was found to have low whitewater boating potential.



Annual grassland near Hat Creek

Table PM-4 Objectives to Preserve and/or Enhance – Recommended Concept

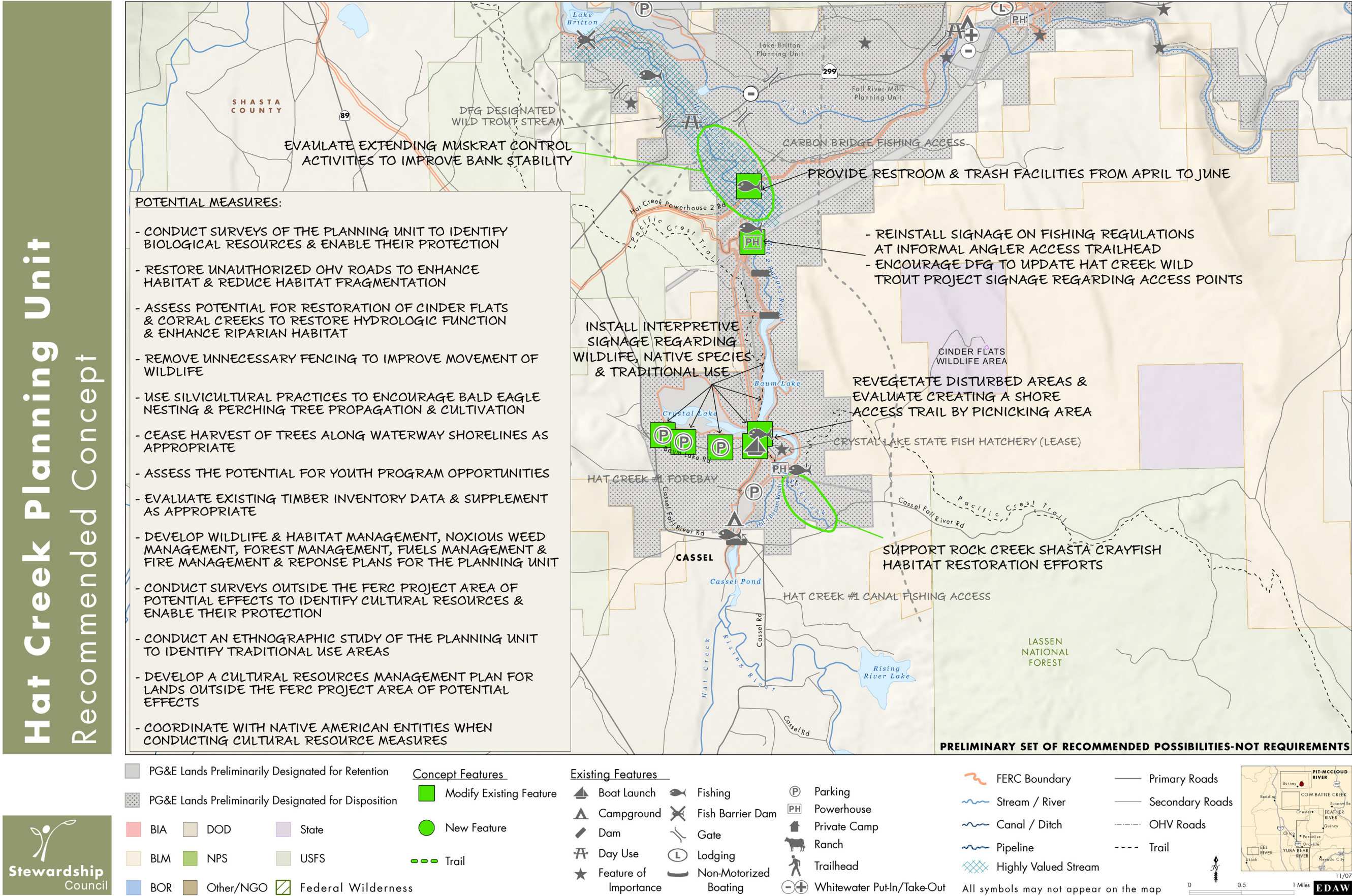
Planning Unit Objective: Preserve and enhance biological and cultural resources while enhancing educational opportunities, the recreation experience, and sustainable forestry management.		
Beneficial Public Value	Objective	Potential Measures to Preserve and/or Enhance BPVs – Not Requirements*
Protection of the Natural Habitat of Fish, Wildlife, and Plants	<b>Preserve and enhance habitat in order to protect special biological resources.</b>	<ul style="list-style-type: none"><li>• Conduct surveys of the planning unit to identify biological resources and enable their protection.</li><li>• Restore unauthorized OHV roads to enhance habitat and reduce habitat fragmentation.</li><li>• Assess potential for restoration of Cinder Flats and Corral Creeks to restore hydrologic function and enhance riparian habitat.</li><li>• Remove unnecessary fencing within the planning unit to improve movement of wildlife.</li><li>• Use silvicultural practices to encourage bald eagle nesting and perching tree propagation and cultivation.</li><li>• Cease harvest of trees along waterway shorelines as appropriate.</li><li>• Develop a noxious weed management plan for the planning unit consistent with the Yellow Starthistle Control Plan for the Hat Creek Project.</li><li>• Evaluate extending muskrat control activities to the area downstream of Hat Creek #2 Powerhouse to improve bank stability.**</li><li>• Support Rock Creek Shasta crayfish habitat restoration efforts.**</li><li>• Develop a wildlife and habitat management plan for the planning unit.</li></ul>
Preservation of Open Space	<b>Preserve open space in order to protect natural and cultural resources, viewsheds, and the recreation setting.</b>	<ul style="list-style-type: none"><li>• Apply permanent conservation easements to ensure a higher level of open space protection.</li></ul>
Outdoor Recreation by the General Public	<b>Enhance recreational facilities in order to provide additional educational opportunities and enhance the recreation experience.</b>	<ul style="list-style-type: none"><li>• Install interpretive signage regarding wildlife, native species, and traditional use at Crystal Lake, Baum Lake, and along the Pacific Crest Trail.**</li><li>• Revegetate disturbed areas and evaluate creating a shore access trail by the picnicking area at the Baum Lake Fishing Access.**</li><li>• Reinstall signage on fishing regulations at the Hat Creek #2 Powerhouse informal angler access trailhead.**</li><li>• Encourage DFG to update Hat Creek Wild Trout Project signage at Hat Creek #2 Powerhouse regarding access points.**</li><li>• Provide restroom and trash facilities at the Carbon Bridge Fishing Access from April to June.**</li><li>• Assess the potential for youth program opportunities.</li></ul>
Sustainable Forestry	<b>Develop and implement forestry practices in order to contribute to a sustainable forest, preserve and enhance habitat, as well as to ensure appropriate fuel load and fire management.</b>	<ul style="list-style-type: none"><li>• Evaluate existing timber inventory data and supplement as appropriate.</li><li>• Develop a forest management plan for the planning unit to promote natural forest development and structural and physical diversity in forests for long-term ecological, economic, social, and cultural benefits.</li><li>• Develop a fuels management plan for the planning unit to ensure long-term forest health and reduce fuel loading and fire hazard.</li><li>• Develop a fire management and response plan for the planning unit to ensure fire preparedness.</li></ul>
Agricultural Uses		None proposed.
Preservation of Historic Values	<b>Identify and manage cultural resources in order to ensure their protection.</b>	<ul style="list-style-type: none"><li>• Conduct surveys outside the FERC Project APE to identify cultural resources and enable their protection.</li><li>• Conduct an ethnographic study of the planning unit to identify traditional use areas.</li><li>• Develop a cultural resources management plan for lands outside the FERC Project APE consistent with the Hat Creek Project Programmatic Agreement.</li><li>• Coordinate with Native American entities when conducting cultural resource measures.</li></ul>

\* This is a set of recommended possibilities for the preservation and enhancement of BPV’s, and is not intended to be a set of requirements for future land management.

\*\* Denotes site specific measure.



HAT CREEK PLANNING UNIT  
Pit-McCloud River Watershed





## Hat Creek Planning Unit

### Fish, Plant, and Wildlife Habitat

#### Potential Measure:

- *Conduct surveys of the planning unit to identify biological resources and enable their protection.*

Though a partial survey of botanical resources was done in 1996, the entire planning unit was not surveyed and there is potential for the presence of special status and traditional use plants. It does not appear that avian or amphibian surveys were completed during relicensing of Hat Creek, though amphibian surveys were completed in the adjacent Pit 1 Project and Pit 3, 4, 5 Project relicensing efforts. Therefore, the Stewardship Council recommends conducting surveys of the planning unit (particularly lands outside the FERC boundary) to identify biological resources, including traditional use plants, and enable their protection. These surveys would provide vital baseline information for future management decisions.

#### Potential Measure:

- *Restore unauthorized OHV roads to enhance habitat and reduce habitat fragmentation.*

There are a few OHV roads through the meadow south of Crystal Lake and in the area near Hat Creek #1 Forebay, which are likely unauthorized roads and may be degrading habitat. Therefore, the Stewardship Council recommends restoring these unauthorized OHV roads to enhance habitat and reduce habitat fragmentation. Restoration of these roads would also discourage further unauthorized OHV use.

#### Potential Measure:

- *Assess potential for restoration of Cinder Flats and Corral Creeks to restore hydrologic function and enhance riparian habitat.*

The lower one-third of the Hat Creek Watershed area is especially susceptible to increased sediment loading. Corral Creek was found to be one of the largest point sources of sediment to the Hat Creek Wild Trout Area in the 1998 Assessment of Erosion and Sedimentation in the Hat Creek Hydroelectric Project Vicinity. This creek is located on the west side of Hat Creek near the Carbon Bridge Fishing Access. Erosion in upper Corral Creek was found to be accelerated in the upper drainage area primarily due to a poorly engineered road. In the lower drainage area, the channel is headcutting and producing sediment at greater than normal baseline levels. Headcutting is an erosional process that deepens a streambed as the stream channel attempts to achieve a base level and leads to sedimentation and reduced aquatic habitat quality, and disconnects the water table from the surrounding floodplain. This prompted the placement of check dams to catch sediment, but cutting from high flows may put these dams at risk for washouts. Another creek in the area, Cinder Flats Creek, was found to have active headcuts working up through the drainage and an extremely degraded floodplain and channel due to previous overgrazing. It is unknown how much recovery has taken place in the creek with the elimination of grazing. To reduce headcutting and sedimentation, the Stewardship Council recommends assessing the potential for restoration of Cinder Flats and Corral Creeks to restore hydrologic function and enhance riparian habitat.

**Potential Measure:**

- *Remove unnecessary fencing within the planning unit to improve movement of wildlife.*

Remnant fencing related to previous grazing use can be found in the planning unit, which could be a barrier to wildlife movement. Fencing within the planning unit is not necessary as grazing is no longer permitted, though fencing may be needed on the perimeter of the planning unit to keep any adjacent cattle use out of the planning unit. To improve the movement of wildlife, the Stewardship Council recommends removing any unnecessary fencing. This would also improve the recreation setting.

**Potential Measures:**

- *Use silvicultural practices to encourage bald eagle nesting and perching tree propagation and cultivation.*
- *Cease harvest of trees along waterway shorelines.*

Forest resources within the planning unit include stands of Jeffrey and ponderosa pine. Currently, there is a lack of replacement nesting trees for the Hat Creek bald eagle nesting territory. Though eagles currently nest on adjacent U.S. Bureau of Land Management (BLM) land, silvicultural practices could be used on planning unit lands to provide nesting trees. As there are already perching trees in existence within the planning unit, silvicultural practices could be implemented to design and maintain perching trees. The Stewardship Council recommends using silvicultural practices to encourage bald eagle nesting and perching tree propagation and cultivation, as well as the cessation of harvesting trees along waterway shorelines as these trees are important for foraging bald eagles, unless harvesting is necessary for public safety or to comply with applicable laws. Preventing logging along waterway shorelines would also protect habitat for the endangered Shasta crayfish.

**Potential Measure:**

- *Develop a noxious weed management plan for the planning unit consistent with the Yellow Starthistle Control Plan for the Hat Creek Project.*

A Yellow Starthistle Control Plan was developed in 2003 to control the spread of yellow starthistle within three areas: Cassel Pond, Hat Creek #1 Forebay, and Baum Lake Fishing Access. Upon a visit to the Carbon Bridge Fishing Access site, it was noted that the area was highly infested with yellow starthistle, which could potentially prevent recreation use of the site if not controlled. Yellow starthistle is also visible along Hat Creek in the Hat Creek #2 Powerhouse area. Though yellow starthistle has been identified within the planning unit, there could be other noxious weeds as well. Therefore, to enhance habitat for native plants, the Stewardship Council recommends developing a noxious weed management plan for the planning unit consistent with the Yellow Starthistle Control Plan for the Hat Creek Project. Development of the noxious weed management plan should be coordinated with existing PG&E noxious weed efforts, and the wildlife and habitat, fuels, and forest management plans.

**Potential Measure:**

- *Evaluate extending muskrat control activities to the area downstream of Hat Creek #2 Powerhouse to improve bank stability.*

Current management includes trapping and removing muskrats, a non-native species that burrows into streambanks, within the Hat Creek FERC Project boundary. Burrowing causes bank



instability and thus erosion and sedimentation into the creek. There may be additional areas susceptible to muskrat damage, as identified by the California Department of Fish and Game (DFG), within the planning unit. If the current program is successful, then the Stewardship Council recommends evaluating extending muskrat control activities to the area downstream of Hat Creek #2 Powerhouse to improve bank stability. Evaluation of extending muskrat control activities would need to take into consideration impacts of muskrat control activities on other resources.

**Potential Measure:**

- *Support Rock Creek Shasta crayfish habitat restoration efforts.*

The endangered Shasta crayfish, the only remaining native California crayfish, is under constant threat of extinction. Currently, the Shasta Crayfish Technical Review Committee, formed by the Hat Creek and Pit 1 Project New Licenses, is working on a project to re-water 600 feet of Rock Creek to provide additional Shasta crayfish habitat. Rock Creek is entirely located within the planning unit and provides water to the Crystal Lake State Fish Hatchery located at the terminus of Rock Creek. Surveys regarding whether or not sufficient water would be available to the hatchery downstream of the proposed re-watering area are needed to determine the feasibility of the project. To promote habitat enhancement for an endangered species, the Stewardship Council recommends supporting the Rock Creek Shasta crayfish habitat restoration efforts by potentially providing access to the area for restoration efforts or accommodating other project-related needs that would enhance the recovery of the imperiled crayfish. Additionally, if the Rock Creek project is completed, interpretive programs could be developed regarding the Shasta crayfish at the restoration site to encourage further public support for restoration and protection of this species.

**Potential Measure:**

- *Develop a wildlife and habitat management plan for the planning unit.*

The Stewardship Council also recommends using biological resource survey data to create a wildlife and habitat management plan. This planning unit contains excellent habitat, and there are many species that use this area including several special status species (e.g., yellow warblers, osprey, pale big-eared bat, Cascades frog, eel-grass pondweed); recommended surveys may reveal additional special status plants and wildlife. Once surveys are completed, potential habitat enhancements could be identified and developed into a comprehensive plan describing habitat and species goals and objectives, as well as measures needed to enhance and protect habitat for plant and wildlife species. Monitoring of species and/or habitats would also be developed as a component of the plan. The wildlife and habitat management plan should be developed in conjunction with noxious weed, forest, and fuels management plans as well as habitat enhancement and protection measures already described herein. The wildlife and habitat management plan should also be consistent with relevant FERC license required Hat Creek Project plans.

## **Open Space**

**Potential Measure:**

- *Apply permanent conservation easements to ensure a higher level of open space protection.*

The Stewardship Council recommends preserving open space values through permanent conservation easements. Conservation easements would describe all prohibited uses to maintain open space values, including the level of uses allowed. Recommendations include restoration with little development and are therefore not expected to decrease the scenic quality of the viewsheds.

## Outdoor Recreation

### Potential Measure:

- *Install interpretive signage regarding wildlife, native species, and traditional use at Crystal Lake, Baum Lake, and along the Pacific Crest Trail.*

As mentioned previously, the planning unit contains habitat for several special status species including birds, fish, and a crustacean, and the area was traditionally used by the Astuge and Illmawi bands of the Pit River Tribe. The Stewardship Council recommends installing interpretive signage at several locations to make recreation users aware of the outstanding habitat, species values, and traditional use of the area, thereby enhancing the recreation experience. Signage regarding wildlife, native species, and traditional use is recommended for the Crystal Lake parking areas, Baum Lake Fishing Access, and two points on the Pacific Crest Trail along the Baum Lake shoreline. This would provide hunters, hikers, and anglers with information on the species they may see and the habitat which they are surrounded by while participating in recreation activities, as well as offer some history on the use of the planning unit by Native Americans. Additional opportunities may exist to coordinate interpretive signage with the Volcanic Legacy Scenic Byway or provide additional signage related to the byway. Signage should be coordinated with the USFS as the Pacific Crest Trail is maintained by the USFS.

### Potential Measure:

- *Revegetate disturbed areas and evaluate creating a shore access trail by the picnicking area at the Baum Lake Fishing Access.*

Baum Lake Fishing Access has recently been improved with the addition of an ADA fishing platform, ADA parking and restroom modifications, expanded parking for boat trailers, and historical signage. However, these modifications have left some bare ground along the edge of the lake that could be revegetated to reduce erosion. There are also some soil compaction and erosion problems near the shore by the picnic tables. Therefore, the Stewardship Council recommends revegetating disturbed areas and evaluating the creation of a shore access trail by the picnic tables to reduce compaction and erosion.

### Potential Measure:

- *Reinstall signage on fishing regulations at the Hat Creek #2 Powerhouse informal angler access trailhead.*

The Hat Creek #2 Powerhouse area has also recently been enhanced with new parking, trails, signage, and an ADA fishing platform. This site is a main access point for anglers to fish upstream of the powerhouse toward the Carbon Bridge Fishing Access. In particular, access to upstream areas is provided by trails that originate near the northwest corner of the parking area. Recently, PG&E removed a small kiosk with fishing regulation signage at the informal trailhead and posted the signage at the restrooms. As many anglers may bypass the main signage regarding regulations at the northeast side of the parking area and the restrooms, the Stewardship Council



recommends reinstalling (and enlarging) signage regarding fishing regulations in the Hat Creek Wild Trout Area at the informal angler access trailhead. This would ensure that a greater number of anglers see the regulation signage.

**Potential Measure:**

- *Encourage DFG to update Hat Creek Wild Trout Project signage at Hat Creek #2 Powerhouse regarding access points.*

In conjunction with recommended signage in the previous measures, the Stewardship Council also recommends encouraging DFG to update the existing Hat Creek Wild Trout Project signage at Hat Creek #2 Powerhouse. The signage contains a map that displays parking and road locations that are no longer correct due to closures.

**Potential Measure:**

- *Provide restroom and trash facilities at the Carbon Bridge Fishing Access from April to June.*

Other than a parking lot, the Carbon Bridge Fishing Access does not currently contain developed facilities. To encourage use of this site and potential use of the Carbon Bridge site as an overflow for the heavily used Hat Creek #2 Powerhouse area, the Stewardship Council recommends providing restroom and trash facilities at the Carbon Bridge Fishing Access during April, May and June when the site receives the highest use. PG&E has stated that there is low use at the Carbon Bridge site during the rest of the year; therefore creation of permanent restroom and trash facilities is not warranted. Restrooms at the Carbon Bridge site were also suggested by DFG in the Hat Creek Wild Trout Management Plan. Prior to development of additional facilities, impacts on other resources would need to be evaluated.

**Potential Measure:**

- *Assess the potential for youth program opportunities.*

The presence of existing recreation facilities offers an opportunity to educate youth on a variety of topics such as wildlife, endangered species, and cultural resources, as well as the fish hatchery. Therefore, the Stewardship Council recommends assessing the potential for youth programs, possibly in conjunction with DFG and local schools. Programs could teach youth about topics such as wildlife and botanical resources, including threatened and endangered species, cultural resources, and fish production at the hatchery.

## **Sustainable Forestry**

**Potential Measures:**

- *Evaluate existing timber inventory data and supplement as appropriate.*
- *Develop a forest management plan for the planning unit to promote natural forest development and structural and physical diversity in forests for long-term ecological, economic, social, and cultural benefits.*

Currently, the planning unit contains one Timber Management Unit (TMU) that is managed for emergency salvage harvesting only. However, there is no overall documented vision for the TMU within the planning unit. The Stewardship Council recommends developing a forest management plan for the Hat Creek Planning Unit through the evaluation of existing forest

inventory data and supplemental information, when appropriate. In addition to supporting natural forest development, the forest management plan would promote holistic watershed management, supporting the enhancement of other beneficial public values over the long-term. As this is an area managed under the Salvage prescription, snags and downed, woody debris would be maintained in the planning unit when not deemed a safety, fire, or disease hazard as this is important for wildlife habitat and forest regeneration. Development of the forest management plan should be coordinated with development of the wildlife and habitat, noxious weed, and fuels management plans.

**Potential Measure:**

- *Develop a fuels management plan for the planning unit to ensure long-term forest health and reduce fuel loading and fire hazard.*

Due to the location of the planning unit adjacent to and within the town of Cassel and presence of rural residential development nearby, reduction of fuels within the planning unit is important. Therefore, the Stewardship Council recommends developing a fuels management plan for the planning unit that would address fuels reduction, special status species' requirements, and viewshed protection. The fuels management plan would help ensure long-term forest health and reduce fuel loading and fire hazard within the planning unit. Development of the fuels management plan should be coordinated with development of the noxious weed, forest, and wildlife and habitat management plans.

**Potential Measure:**

- *Develop a fire management and response plan for the planning unit to ensure fire preparedness.*

As previously mentioned, the planning unit includes lands surrounding and within the town of Cassel as well as lands adjacent to or near other rural residential developments. The planning unit also contains recreation facilities that receive heavy recreation use during certain times of the year. Therefore, the Stewardship Council recommends a fire management and response plan to ensure fire preparedness and enhance fire prevention. The plan would include appropriate actions to take when a fire occurs and reporting procedures that would be useful for the community and Cassel Campground host.

## **Agricultural Uses**

None recommended.

## **Preservation of Historic Values**

**Potential Measures:**

- *Conduct surveys outside the FERC Project APE to identify cultural resources and enable their protection.*
- *Coordinate with Native American entities when conducting cultural resource measures.*

It is likely that surveys conducted for relicensing efforts were limited to the Hat Creek Project Area of Potential Effects (APE), defined as all lands within the FERC boundary. Therefore, lands outside the FERC Project APE were likely not surveyed. To enhance knowledge and protection



of cultural resources, the Stewardship Council recommends conducting surveys of lands outside the Hat Creek Project APE to identify cultural resources and enable their protection. Documentation of cultural sites should be coordinated with Native American entities.

**Potential Measures:**

- *Conduct an ethnographic study of the planning unit to identify traditional use areas.*
- *Coordinate with Native American entities when conducting cultural resource measures.*

There are many cultural resources within this planning unit, as well as the potential for traditional plants or the cultivation of plants traditionally used by Native Americans. To increase traditional use of this area, the Stewardship Council recommends conducting an ethnographic study of the planning unit (particularly outside the FERC boundary) to identify traditional use areas, most notably identifying ethnobotanical sites. The ethnographic study should be coordinated with Native American entities.

**Potential Measures:**

- *Develop a cultural resources management plan for lands outside the FERC Project APE consistent with the Hat Creek Project Programmatic Agreement.*
- *Coordinate with Native American entities when conducting cultural resource measures.*

Assuming that the recommended surveying and ethnographic study identify cultural sites and traditional use areas, the Stewardship Council recommends developing a cultural resources management plan for the area outside the Hat Creek Project APE to ensure that cultural resources are provided adequate protection in the future. The plan would include appropriate measures for the identification, evaluation, and treatment of cultural resources (archaeological and historical) and traditional use areas. Treatment measures could include avoidance, specific protective measures (e.g., fencing), site monitoring, and methods to preserve, restore, or enhance cultural resource values through conservation easements, management agreements, or through public interpretation and education programs. Development of the cultural resources management plan should be consistent with the Hat Creek Project Cultural Resources Management Plan and should be coordinated with Native American entities.