

**Bald Eagle and American Peregrine Falcon
Management Plan**

Attachment C

**Biological Opinion
for the New Bullards Bar Reservoir
Safety and Annual Maintenance,
Downieville Ranger District, Tahoe National Forest**

**Yuba River Development Project
FERC Project No. 2246**

September 2019

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United States Department of the Interior



FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In reply refer to:
1-1-03-F-0335

FEB 04 2004

Steven T. Eubanks
Forest Supervisor
Tahoe National Forest
631 Coyote Street
Nevada City, California 95959

Subject: Biological Opinion for the New Bullards Bar Reservoir Safety and Annual Maintenance, Downieville Ranger District, Tahoe National Forest

Dear Mr. Eubanks:

This is in response to your October 21, 2002, request for informal consultation with the U.S. Fish and Wildlife Service (Service) on the New Bullards Bar Reservoir Safety and Annual Maintenance Project in Yuba County, California. Your request was received in our office on October 23, 2002. The proposed action involves disposal of woody debris accumulated in the reservoir by piling and burning, removal of standing trees on the shoreline areas of the reservoir that have been determined to be hazards to human safety, and reducing ladder fuels within administrative sites around the reservoir, including campgrounds, day-use facilities, and U. S. Forest Service (Forest Service) facilities. The species at issue with this proposed action are the Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*) (LCT), the bald eagle (*Haliaeetus leucocephalus*), the California red-legged frog (*Rana aurora draytonii*) (frog), and the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (beetle), which are listed as threatened pursuant to the Endangered Species Act of 1973, as amended (Act).

Your October 21, 2002, letter, requested concurrence with the determinations that the proposed action would not affect the LCT and the beetle, and was not likely to adversely affect the bald eagle and the frog. We concur that the proposed action will not affect the LCT and the beetle. We also concur that the proposed action is not likely to adversely affect the frog. We are unable to concur that the proposed action is not likely to adversely affect the bald eagle, because the removal of hazard trees on the shoreline of the reservoir is likely to involve the removal of actual or potential perching, roosting, and nesting habitat for bald eagles.

This document represents the Service's biological opinion on the effects of the action on the bald eagle, in accordance with section 7 of the Act. This biological opinion is based on information provided in the October 15, 2002, *Biological Assessment for the New Bullards Bar Reservoir Safety and Annual Maintenance, Downieville Ranger District, Tahoe National Forest* (Biological Assessment), the August 7, 2003, *New Bullards Bar Hazard Tree Rating Form, New Bullards Bar Reservoir Hazard Tree Rating Form Supplement*, and *Short Term Mortality Indicators* (collectively referred to as the Field Data Form), the April 11, 2002, *Draft New Bullards Bar Management Plan*, field investigations, and other sources of information. A complete administrative record of this consultation is on file in this office.

Consultation History

April 24, 2002 Site visit at New Bullards Bar Reservoir to review areas used by bald eagles, and discuss proposed wood debris disposal sites.

May 16, 2002 Site visit at New Bullards Bar Reservoir to discuss proposed criteria for hazard tree identification and removal and view examples of tree proposed for removal around the reservoir.

October 23, 2002 Request for informal consultation received for the New Bullards Bar Reservoir Safety and Annual Maintenance, Downieville Ranger District, Tahoe National Forest

August 6, 2003 Meeting at Downieville Ranger District to discuss the final draft of the August 7, 2003, *New Bullards Bar Hazard Tree Rating Form, New Bullards Bar Reservoir Hazard Tree Rating Form Supplement*, and *Short Term Mortality Indicators*

BIOLOGICAL OPINION

Description of the Proposed Action

In this proposed action involves three closely related safety and maintenance actions. The proposed actions include: (1) removing and disposing of woody debris from the reservoir; (2) removing hazard trees; and (3) maintaining administrative sites (campgrounds, day-use areas and Forest Service facilities) by removing under-story vegetation. In addition to these proposed activities, management requirements listed in Section VIII of the Biological Assessment are a required part of these proposed actions, and are described in the *Conservation Measures* section.

The Draft New Bullards Bar Fish and Wildlife Management Plan (April 11, 2002) (Management Plan) includes the following objectives: (1) fulfill the USDA Forest Service (USFS) and Yuba County Water Agency's (YCWA) obligations to the USFWS (as mandated by the Federal Energy Regulatory Commission), which is to protect and manage habitat important to the species survival; (2) help manage to meet the population goals identified in the Recovery Plans for federally-listed species; (3) manage for a safe visitor experience while mitigating adverse effects to threatened, endangered, and sensitive species; (4) restrict human disturbances (walking, driving, mountain biking, boating, camping, operating machinery) within the Management Plan areas of interest to protect and sustain existing and potential listed species populations and habitat; (5) provide land managers with guidance regarding the kinds of actions that may require consultation with the Service. The Management Plan identifies certain routine activities that must occur at the reservoir to provide for improved public safety. Agency managers wish to consult with the Service on some of these actions, to ensure that adequate mitigations and protection measures are included for federally protected species.

Several physical requirements for wood debris disposal sites are needed to be able to stockpile and dispose of wood. These include:

1. Have a low-gradient slope at the water's edge so that wood can be floated onto the shoreline.
2. Possess a cove-like shape, to facilitate effective booming of wood while water levels are high.
3. Have nearby road access for heavy equipment, needed to pile wood for burning.
4. Be large enough to accommodate estimated yearly wood volumes, including periodic years with medium to high water flows.

Forest Service and YCWA personnel surveyed the reservoir by boat on several occasions to identify alternative sites. No potential sites were found that met all objectives. Developing a site for stockpiling, including new road construction was considered, and again, no suitable locations were found. Some alternative sites were found, but all were within the bald eagle breeding territory.

Three locations were selected for wood disposal. Mitigations are incorporated with the proposed actions, to meet the following wildlife objectives, and are part of the proposed action.:

1. Minimize the risk of adversely affecting the California red-legged frog.
2. Protect bald eagle breeding at the reservoir.
3. Protect wintering eagles.
4. Reduce adverse effects to fish and wildlife habitat.

The proposed safety and annual maintenance actions will take place at New Bullards Bar Reservoir, in the Downieville Ranger District of the Tahoe National Forest, Yuba County, California, on the USGS Camptonville, CA 7.5' Quadrangle Map, (T18N R8E) (Figure 1 - Appendix B). The proposed

actions will be administered by the Downieville Ranger District and/or the YCWA. They include: (1) remove and dispose of woody debris from the water surface; (2) remove hazard trees that present a higher risk to public safety; and (3) reduce ladder fuels within administrative sites (campgrounds, day-use areas and Forest Service facilities) by removing and disposing of brush and smaller trees. Specific activities associated with these actions are detailed below. The conservation measures specified in this project description are provided at the end of this section.

Action Item 1: Remove and Dispose of Woody Debris From the Reservoir

Woody debris in New Bullards Bar Reservoir poses a hazard to the public. To provide for public safety the YCWA will gather wood from the water surface by boat when the water level is high (generally in May of each year), and boom it in the coves for storage until the water level drops, leaving the wood on land. Wood gathering will occur several times per week, limited to a few trips into a cove per day.

Over the past year YCWA has worked with the Tahoe National Forest to select new woody debris gathering and disposal sites. Three proposed woody debris treatment sites are located on the west bank of Garden Point (T18N R8E Sec 7 SW 1/4) (Figure 2 - Appendix B). The total area to be affected is approximately ½ acre. Since the new sites are much smaller than Moran Cove, three potential small cove sites were identified to handle anticipated annual volumes of woody debris. The three coves were prioritized for use based on ease of access, wood storage/disposal space and proximity to the bald eagle nest tree. Cove 1 offers the best access and wood storage/disposal area; this cove would be the first one used in any given year. If woody debris volume required the use of a second site, Cove 2 would be used. Cove 2 is smaller than Cove 1, and the slope is steeper making woody debris storage/disposal more difficult. Cove 3 is the least favorable cove for woody debris storage and is unsuitable for debris disposal due to the topography. If Cove 3 is needed, it would only be used for woody debris storage, necessitating moving the wood later to Cove 1 or 2 for disposal.

The new woody debris gathering and disposal sites do not require any California red-legged frog mitigations, since these sites are not located near (within one mile of) any suitable breeding habitat for this species. Limited operating periods are implemented to protect wintering eagles and breeding eagles.

The Peripheral Facilities Caretaker, of the Yuba County Water Agency, has been disposing of wood debris at Bullards Reservoir since 1986, and he was consulted regarding the adequacy of the disposal sites. The three coves selected should be able to handle wood disposal during most years; it is questionable whether they can handle the volumes of wood washed down during 30- or 100-year flood events. It is possible that air quality restrictions on burning, combined with the uncertainty of

when fall rains begin, could delay burning too late to be able to complete these actions prior to the November 15 limited operating period, which protects wintering eagles. Once burning begins, wood consumption should be complete within several days. The expectation is that in most years, wood can be burned prior to November 15, or, wood can be held over to the following year. If the wood is accumulating faster than it can be disposed of, alternatives will be sought to avoid the need to revert to emergency consultation. Should a flood event occur, or other unforeseen circumstance, additional sites may need to be identified, and emergency consultation may need to occur. A management requirement is included limiting emergency consultation to no more than two out of five years, or this plan will be re-evaluated, and regular consultation pursued as needed.

The following outlines the Woody Debris Gathering and Removal proposed actions:

After August, when the reservoir level is low and the wood debris is high and dry, an excavator and bulldozer, backhoe or similar equipment would be used in Coves 1 and/or 2 to pile the accumulated woody debris. Equipment access would be along the existing road that extends through Garden Point. Equipment would not operate within 25 feet of any surface water or cross any areas with surface water unless reviewed and approved by a Forest Service aquatic specialist.

To provide for proper/safe weather conditions for burning, woody debris piles would be burned by the Yuba County Water Agency after the burn ban is lifted and the weather is cool and wet (probably sometime in mid to late October). Fuel treatment for administrative burning will be done with an approved burn plan or a valid burn permit. Burning outside of the USFS Direct Protection Area (DPA) will be coordinated with the California Department of Forestry. The woody debris piles would be directionally ignited to provide escape routes for lizards and other animals that may be hiding under the wood. Burning of the woody debris may be aided by alumagel and portable fans. A Forest Service biologist will conduct site reviews and be available for advice during all phases of project implementation.

Action Item 2: Remove Hazard Trees

Hazard trees near New Bullards Bar Reservoir pose a threat to public safety. It is Forest Service policy to provide for public safety. Areas where hazard tree removal may occur include: developed and undeveloped recreation sites, campgrounds, public access roads, special use areas, Forest Service administrative sites, day use areas, lakeshore areas, trailheads, and other areas of high recreation and visitor use.

A tree (conifer or hardwood) is considered a hazard if all or a portion of the tree has a high potential to fall or roll onto a facility, visitor use area or roadway and cause personal injury or property damage. The distance to trees on the uphill side may exceed one tree height if they are likely to roll or slide onto

the roadway, site, or facility (i.e., barriers are insufficient to prevent trees from reaching the roadway, trail or facility).

Hazard Tree Criteria. The Field Data Form provided in Appendix A of this Biological Opinion is for determining definite hazard tree situations. Guidelines applied in the Field Data Form are based on physical location (target potential) and physical characteristics (tree defects) that either present an imminent hazard or have high potential for tree failure and the potential to reach an area of concern (road, campground, administrative site, etc.). There may be other trees and situations that may not specifically fall into these categories but may still be determined to be a hazard based on local conditions, further site evaluation and the judgment of the inspector.

Conservation Measures

The Tahoe National Forest Land and Resource Management Plan Standards and Guidelines which have been incorporated into the project proposal are:

1. Surveys for elderberry plants will continue in any unsurveyed sites to within 200 feet of the proposed management actions, until all sites have been surveyed. If plants are found, necessary consultation will occur with the USDI Fish and Wildlife Service prior to implementing any management action.
2. To protect breeding eagles, no activities will occur between January 1 through August 31 (or one month past fledging) within 0.25 miles of the Garden Point bald eagle breeding territory (Figure 4 - Appendix B). If sufficient monitoring identifies the nest tree being used that year, the area for the limited operating season may be adjusted to within 0.25 miles of the nest tree. (Provided eagles continue to use the 2002 nest tree, because it is outside of the 0.25 mile buffer, stockpiling of wood by boat in the three coves identified in the Biological Assessment may still occur in the spring.) Should eagles use a different nest tree, all activities will be re-evaluated based on their proximity to the new nest, which may necessitate the re-initiation of consultation with the U. S. Fish and Wildlife Service.
3. To assist recovery plan goals for the bald eagle, no proposed activities on the land (burning debris, stockpiling wood, hazard tree removal, brush removal) will occur from January 1 through August 30 within all expansion territories identified in the Bullards Bar Reservoir Fish and Wildlife Management Plan (Figure 4 - Appendix B). This season may be shortened from January 1 to June 30, if sufficient monitoring can determine that eagles are not nesting within 0.25 miles of the proposed activities. Wood gathering from the water surface may still occur within 0.25 miles of the expansion territories. Should new bald eagle nests be discovered in the future, appropriate consultation will be re-initiated as needed, depending on site-specific concerns.

4. To protect wintering bald eagles, limit the operating season, so that no activities occur from November 15 through March 15 within 0.25 miles of the high water mark. Because site-specific monitoring at the dam shows that in some years eagles may congregate earlier, this limited operating period is extended from November 1 through March 15 for areas within 0.25 miles of the dam and 0.25 miles of the winter night roost.

5. Prior to removing any hazard trees 15" dbh or greater, the following reviews will take place in coordination with a USFS biologist:

a. Completion of the Field Data Form (Appendix A) that documents the rationale for hazard rating, and identifies the tree species, dbh, and location, including distance from the water's edge. The form will also document site-specific determinations made of public use within the range of the tree, based on the site-specific evaluation of shoreline topography and local knowledge of public use by reservoir personnel. The form will also note any occurrences of elderberry (Sambucus sp.) plants within 200 feet of any project activities.

b. Because the public use map (Figure 3 - Appendix B) delineates broad areas of the shoreline that receives high, moderate, and low use, and it is of a broader scale than site-specific determinations, further refinement of this public use map should be an ongoing process, and include updates to the map.

c. Snag retention standards as identified in the Sierra Nevada Forest Plan Amendment (Forest Service 2001) should be met within this area (i.e. four snags per acre). Refer to Appendix B of the Biological Assessment for a detailed explanation of the snag retention standards as they apply to Bullards Bar Reservoir (Appendix B in this Biological Opinion). For hazard trees identified for removal within 200 feet of the shoreline, all snags will be sampled for a distance of approximately 0.25 miles in either direction. Additional live tree or other potential perching structures in this area may also be noted. If snag retention standards would not be met as a result of hazard tree removal, administrative closures should be considered as an alternative to protect public safety. The construction or development of alternate bald eagle perching structures may also be considered, should public closures not be feasible.

d. Within high use foraging sites and winter night roosts identified in the *Draft Bullards Bar Reservoir Fish and Wildlife Management Plan* (or as revised in the future), multiple perching structures should be maintained. The above standard of retaining four snags per acre is a minimal goal at these sites. Additionally, the following standard should be applied:

i. Ninety percent of all potential perches that are present should be retained; up to ten percent may be removed as hazards. If hazard tree removal would cause perching

structures to be reduced below this level, administrative closures should be considered as an alternative to hazard tree removal to protect public safety. The construction or development of alternate bald eagle perching structures may also be considered, should public closures not be feasible.

e. To mitigate for the loss of bald eagle perching habitat, fell hazard trees that are immediately adjacent to the shoreline so that stumps are higher than usual (e.g. 3- to 4-feet high), so the stumps may still be used for perching. If practical, directional fall trees to avoid the high water line. Where safety and fuels concerns are not present, recruit the bole of the tree for additional wood structure and potential perching structures. These actions are recommended only where they do not compromise faller safety.

6. For all hazard trees identified for removal from Moran Cove, contact a biologist to check the site for California red-legged frogs prior to removal of any hazard tree(s).

7. To protect aquatic and riparian resources all hazard trees identified for removal in riparian conservation areas (RCAs) will be reviewed by a biologist. Review may include species specific surveys and/or additional recommendations such as dropping and leaving trees on-site. Required RCA widths are as follows:

Perennial streams = 300 feet each side

Seasonal streams = 150 feet each side

8. If large frogs (> 2 inches), turtles, large stick nests or eagles are observed, a Forest Service biologist will be contacted and activities will be delayed until the site can be reviewed.

9. It is expected that activities identified in this consultation adequately cover most routine activities needed to address public safety. To better address any uncertainty surrounding this, especially regarding the stockpiling and disposing of woody debris, should it be necessary to pursue emergency consultation in two of five years, alternative solutions will be sought and appropriate consultation reinitiated, to avoid the need for emergency consultation.

Figure 3 (Appendix B) shows public use of the reservoir near the shoreline at a coarse scale. Information used to develop Figure 3 (Appendix B) took into consideration boating use, popular areas for fishing, camping, picnicking, and shoreline access. Not all areas shown as high and moderate use have an accessible shoreline. Steep topography at this reservoir makes most of the shoreline difficult to access and hazard trees are not an issue at these sites. Moderate to high shoreline use tends to occur at places with the lowest gradient. Shoreline use patterns will be identified site-specifically, as areas are assessed in more detail during hazard tree ranking. Each hazard tree ranking will evaluate

public use site-specifically, based on local knowledge of the actual use at the site and the probability of use based on topography. The actual public use is discontinuous at a finer scale, rather than the continuous areas reflected in Figure 3 (Appendix B).

A hazard tree evaluation form will be completed for all trees 15 inches or greater. All hazard tree removal will be coordinated through the District Wildlife Biologist. Wildlife mitigation measures need to be met at each hazard tree removal site.

Action Item 3: Maintain Administrative Sites (campgrounds, day-use areas and Forest Service facilities) by: reducing ladder fuels within administrative sites by removing and disposing of brush and smaller trees.

Maintaining administrative sites is needed to provide a safe recreational and working environment at the reservoir. Maintenance includes removing mid- and lower-story fire hazard fuels from campgrounds (Garden Point, Dark Day, Schoolhouse, Hornswoggle, Cottage Creek, Madrone Cove, and Frenchy Point), day use areas (Dark Day and Cottage Creek) and administrative sites (Bullards Work Station) (Figure 1- Appendix B). This includes removing selected trees 12 inches and smaller and brush (deer brush, tan oak, scotch-broom, poison oak, blackberry). Vegetation would be hand cut using chainsaws and pruners, piled and burned. Some woody debris will be cut into firewood-sized pieces and left for campers to use the following season. Woody debris may also be chipped and used for ground cover, where needed.

Action Area

New Bullards Bar Reservoir is located at an elevation of 1900 feet and is constructed on the North Yuba River. Several creeks flow into the reservoir from both the Plumas National Forest and the Tahoe National Forest.

A variety of public and private interests own land around New Bullards Bar Reservoir. The majority of the land is National Forest System Lands, managed by two National Forests, the Tahoe National Forest (TNF) and the Plumas National Forest (PNF). The Yuba County Water Agency (YCWA) owns the majority of the private land around the perimeter of the reservoir, with individual private property owners and residential housing occupying the remainder.

The YCWA is licensed to manage New Bullards Bar Reservoir and provide hydroelectric power, flood control, domestic and agricultural water and recreation. The reservoir is a 966,103 acre-foot water storage facility, covering 4,809 water surface acres at a maximum water surface elevation of 1,956 feet above sea level (YCWA 1993). The reservoir is mostly undeveloped, but offers easy road

access and is particularly attractive to those seeking motorized boat oriented recreation in a scenic setting.

Vegetation surrounding the reservoir includes a diversity of vegetation typical of montane hardwood-conifer habitats. The most common tree species are Ponderosa pine (*Pinus ponderosa*), sugar pine (*Pinus lambertiana*), Douglas-fir (*Pseudotsuga menziesii*), incense cedar (*Calocedrus decurrens*), California black oak (*Quercus kelloggii*), tan oak (*Lithocarpus densiflorus*) and Pacific madrone (*Arbutus menziesii*). Canopy cover generally exceeds 40 percent.

Bald Eagle

Status of the Species

The bald eagle once nested throughout much of North America near coasts, rivers, lakes, and wetlands. The species experienced population declines throughout most of its range, including California, due primarily to environmental contamination from the use of DDT and other persistent organochlorine compounds, habitat loss and degradation, shooting, and other disturbances (Detrich 1986, Stalmaster et al. 1985, USFWS 1986). The drastic decline of the species led to its listing on February 14, 1978, and protection under the Act (USFWS 1978). The *Pacific Bald Eagle Recovery Plan* (Recovery Plan) was released in 1986 for the recovery and maintenance of bald eagle populations in the 7-state Pacific recovery region (Idaho, Nevada, California, Oregon, Washington, Montana, and Wyoming) (USFWS 1986). In recent years, the status of bald eagle populations has improved throughout the United States. It was downlisted from endangered to threatened on July 12, 1995, throughout the lower 48 states (USFWS 1995). A proposed rule to remove the species from the list of endangered and threatened wildlife was made on July 6, 1999 (USFWS 1996) but this rule has not been finalized. Critical habitat has not been designated for this species. In addition to the Act, the bald eagle is protected under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712) and the Bald Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d).

The adult bald eagle is recognized by its white head and tail contrasting against its dark brown body as well as its wingspan which can be greater than 6.5 ft (2 m). The species is long-lived, and individuals do not reach sexual maturity until four or five years of age.

The bald eagle is a generalist and opportunistic predator and scavenger adapted to aquatic ecosystems. It frequents estuaries, large lakes, reservoirs, major rivers, and some coastal habitats. Its primary foods, in descending order of importance are: fish (taken both alive and as carrion), waterfowl, mammalian carrion, and small birds and mammals. Bald eagles are highly maneuverable in flight and frequently perch-hunt. Diurnal perches are used during foraging; these usually have a good

view of the surrounding area and are often the highest perch sites available (Stalmaster 1976, USFWS 1986). They are also known to hunt by coursing low over the ground or water. In general, foraging habitat consists of large bodies of water or free-flowing rivers with abundant fish and adjacent snags and other perches (Zeiner et al. 1990).

Breeding generally occurs February to July (Zeiner et al. 1990) but breeding can be initiated as early as January 1st via courtship, pair bonding, and territory establishment. The breeding season normally ends approximately August 31st when the fledglings have begun to disperse from the immediate nest site. One to three eggs are laid in a stick platform nest 50-200 ft (15.2-61.0 m) above the ground and usually below the tree crown (Zeiner et al. 1990). Incubation may begin in late February to mid-March, with the nestling period extending to as late as the end of June. From June thru August, the chicks will generally remain within the nest tree area. Bald eagles are susceptible to disturbance by human activity during the breeding season, especially during egg laying and incubation, and such disturbances can lead to nest desertion or disruption of breeding attempts (USFWS 1986).

Nesting territories are normally associated with lakes, reservoirs, rivers, or large streams and are usually within 2 miles from water bodies that support an adequate food supply (Lehman 1979, USFWS 1986). Some of California's breeding birds winter near their nesting territories. Most nesting territories in California occur from 1000-6000 ft (304.8-1828.8 m) elevation, but nesting can occur from near sea level to over 7,000 ft (2133.6 m) (Jurek 1988).

In the Pacific Northwest, bald eagle nests are usually located in uneven-aged (multi-storied) stands with large, old trees (Anthony et al. 1982). Most nests in California are located in ponderosa pine and mixed-conifer stands and nest trees are most often ponderosa pine (*Pinus ponderosa*) (Jurek 1988). Other site characteristics, such as relative tree height, tree diameter, species, position on the surrounding topography, distance from water, and distance from disturbance, also appear to influence nest site selection (Lehman et al. 1980, Anthony and Isaacs 1989). Bald eagles often construct up to five nests within a territory and may alternate between them from year to year (USFWS 1986). Nests are often reused and eagles will add new material to a nest each year (DeGraaf et al. 1991).

Trees selected for nesting are characteristically one of the largest in the stand or at least co-dominant with the over story, and usually have stout upper branches and large openings in the canopy that permit nest access (USFWS 1986). Nest trees usually provide an unobstructed view of the associated water body and are often prominently located on the topography. A survey of nest trees used in California found that about 71 percent were ponderosa pine, 16 percent were sugar pine (*Pinus lambertiana*), and five percent were incense-cedar (*Librocedrus decurrens*), with the remaining eight percent distributed among five other coniferous species (Lehman 1979).

Lehman (1979) found that 70 percent of the nest trees surveyed were classified as highly susceptible to beetle infestation, probably a function of bald eagles using mature and over mature trees. Ninety-three percent of the nest trees were 21-60 inches (in) (53.3-152.4 centimeters (cm)) in diameter, with a mean diameter of 43.1 in (109.5 cm) and 92 percent were greater than 76 ft (23.2 m) tall, with a mean height of 111.9 ft (43.1 m). Seventy-three percent of the nest sites were within 0.5 mile (0.8 km) of a body of water, 87 percent within 1 mile (1.6 km), and none were over 2 miles (3.2 km) from water. Other trees, such as snags, trees with exposed lateral limbs, or trees with dead tops, are often also present in nesting territories and are used for perching or as points of access to and from the nest. Such trees also provide vantage points from which territories can be guarded and defended. Nearby trees may also screen the nest from human disturbances or provide protection from wind damage (Jurek 1988).

Wintering habitat is associated with open bodies of water, with some of the largest wintering bald eagle populations occurring in the Klamath Basin (Detrich 1981, 1982). Smaller concentrations of wintering birds are found at most of the larger lakes and man-made reservoirs in the mountainous interior of the north half of the state and at scattered reservoirs in central and southwestern California.

Two habitat characteristics appear to play a significant role in habitat selection during the winter: diurnal feeding perches, as described above; and communal night roost areas. Communal roosts are usually near a rich food resource (USFWS 1986), although Keister and Anthony (1983) found that bald eagles used forest stands with older trees as far as 9.6 miles (15.4 km) from the food source in the Klamath Basin. The areas used as communal roosts in the Klamath Basin were the forest stands with old (mean age of roost trees was 236 years), open-structured trees that were close to the feeding areas. In stands where ponderosa pine was dominant, the pine was used almost exclusively for roosting. In forest stands that are uneven-aged in the Pacific Northwest, communal roosts have at least a remnant of large, old trees (Anthony et al. 1982).

Most communal winter roosts used by bald eagles throughout the recovery areas offer considerably more protection from the weather than diurnal habitat (USFWS 1986). Isolation from disturbances is an important feature of bald eagle wintering habitat. Excessive human activity may be the reason why some suitable wintering habitat is not used by bald eagles (USFWS 1986). Human activity near wintering bald eagles can adversely affect eagle distribution and behavior (Stalmaster and Newman 1978).

Bald eagles are susceptible to disturbance by human activity during the breeding season, especially during egg laying and incubation. This includes recreational activities, fluctuating fish populations and availability of roost trees as a result of reservoir level fluctuations, risk of wild fire, fire suppression activities, fragmentation of habitat, home sites, campgrounds, mines, timber harvest, and roads. Such

disturbances can lead to nest desertion or disruption of breeding attempts. Human activities are more likely to disturb bald eagles when located near roosting, foraging, and nesting areas (Stalmaster and Kaiser 1998, Stalmaster et al. 1985, USFWS 1986).

Studies have documented a threshold at which human activities elicit response for eagles (Stalmaster and Newman 1978, Knight and Knight 1984), though other studies show little direct effect of human activities on bald eagle nesting attempts (Mathisen 1968, Fraser et al. 1985). Human induced failures are likely one-time catastrophic events (i.e., firearm target practice) occurring near nests early in the nesting season, which often escape detection (Jackman and Hunt 2000).

Human recreation resulting in disruption of wildlife ecology is an emerging issue in natural resources management (reviews in Knight and Gutzwiller 1995; Knight and Skagen 1988). Boyle and Samson (1983) listed 189 literature references that identified effects of non-consumptive outdoor recreation on terrestrial vertebrates in North America. More than 81 percent (136) of these articles reported negative effects on wildlife while less than 7 percent (11) reported positive effects and 22 percent (41) reported no or undetermined effects. Several authors have demonstrated that nesting and foraging eagles avoid areas of human use or development (Buehler et al. 1991, McGarigal et al. 1991, Brown and Stevens 1997). Individual pairs of nesting bald eagles exhibit varying levels of tolerance to disturbance throughout the breeding season and during periods of foraging.

The effects of recreational activities on bald eagles are variable and depend on the context in which the activity and eagle encounters take place, the eagles behavioral and physical state, and the spatial and temporal variation of the interaction (Grubb and King 1991; Anthony et al. 1995). McGarigal et al. (1991) described two forms of disturbance which result from human-eagle interactions. The first form, active displacement, involves humans actively approaching or passing by eagles. The second form, passive displacement, involves human activities that influence an eagle's environment and cause eagles to change their location and behavior.

McGarigal et al. (1991) described active displacement as humans coming into contact with eagles by boating past eagles on a narrow section of river. This terminology could also apply to open lakes and marshes when humans may have access to areas by foot where eagles congregate. Several researchers have examined active displacement by measuring the distance between a human activity and an eagle at which an eagle flushes. This method enables researchers to establish a flush response (percentage of human-eagle interactions within a specified distance which result in an eagle flushing) or a mean flush distance. McGarigal et al. (1991) found that less than 6 percent of human activities within 1640.4 ft (500 m) of breeding eagles resulted in flushing disturbance on the Columbia River in Washington. Skagen (1980) found that 42.5 percent of wintering eagles on the Skagit River in Washington flushed when boats, pedestrians, or vehicles approached within 1640.4 ft (500 m). Fraser

et al. (1985) found that breeding bald eagles in Minnesota flushed at 187-3251.3 ft (57-991 m) at the approach of a pedestrian, with an average flushing distance of 1561.7 ft (476 m). Seventy-five percent of all flight responses occurred when eagles in Michigan were within 656.2 ft (200 m) of vehicles, pedestrians, boats, or aircraft (Grubb et al. 1992). Steidl and Anthony (1996) reported that 52 percent of all non-breeding summer eagles in Alaska that flushed in response to rafts on the Gulkana River did so between 82-328.1 ft (25-100 m). In northwestern Washington, researchers reported that flushing distances of perched and feeding bald eagles averaged 436.4 and 734.9 ft (133 and 224 m) in response to boating and pedestrian activities on the Skagit River Bald Eagle Natural Area (Stalmaster and Kaiser 1998). Finally, Russel (1980) found that 59 percent of all wintering eagles along three rivers in northwestern Washington flushed in response to a census raft and 100 percent of eagles in feeding activities were flushed.

The second form of displacement described by McGarigal et al. (1991) is passive displacement. Human activities affect the eagle's environment and cause changes in the eagle's distribution or behavior (Anthony et al. 1995). McGarigal et al. (1991) reported that breeding eagles avoided an area within 1312.3 ft (400 m), ranging from 656.2-2952.8 ft (200-900 m) of an experimental stationary boat. Eagles also spent less time and made fewer foraging attempts in the experimental area during the experimental period. Knight et al. (1991) found that eagles were more likely to be on the ground than in perches when anglers were absent from riverbanks. Eagles on their study area were constrained to feed on the ground, as the salmon carcasses they fed on were too heavy to take to perch trees. This led Knight et al. (1991) to suggest that human activity disrupted feeding, and reduced energy intake and increased energy expenditure. Skagen et al. (1991) reported that after a disturbance, eagles seldom returned to feed that day. On the Skagit River in Washington, Skagen (1980) found a significant decrease in the proportion of eagles feeding when human activity was present within 200 m of the feeding area in the previous 30 minutes. Stalmaster and Newman (1978) found that disturbance in areas of high human activity at major feeding grounds caused a shift in distribution which resulted in displacement of birds to lower quality habitat and confined the population to a smaller area. Eagles utilizing a portion of the Sauk and Suiattle Rivers in Washington having lower human activity showed significantly higher sensitivity to human disturbance than areas with higher levels of activity (Russel 1980).

There have been several studies that have evaluated the effects of recreational human disturbance on nesting bald eagles. These types of studies are not common and relatively speaking a small number of them have been published (Mathisen 1968; Anthony and Isaacs 1989; Grubb and King 1991; Buehler et al. 1991; Grubb et al. 1992; Steidl and Anthony 1996). Several studies have examined the relationship between recreation and wintering bald eagle activity (Shea 1973; Servheen 1975; Stalmaster and Newman 1978; Russel 1980; Skagen 1980; Steenhof et al. 1980; Walter and Garrett 1981; Knight 1984; Stalmaster and Kaiser 1998). Negative impacts of recreational activities on bald

eagles include: reduced fitness, altered behavior, death, changes in demographics, distribution (spatially and temporally), and community composition and interactions.

Environmental Baseline

The purpose of this section is to provide a baseline for comparison in determining whether implementation of the proposed project would jeopardize the continued existence of the species throughout all or part of its range, and whether the proposed project would provide for the species' conservation and long-term survivability.

The bald eagle continues to be found throughout much of North America and breeds or winters throughout California, except in the desert areas (Zeiner et al. 1990; DeGraaf et al. 1991). In California, most breeding occurs in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity Counties (Zeiner et al. 1990; Jurek in litt. 2000). California's breeding population is resident year-long in most areas as the climate is relatively mild (Jurek 1988). Between mid-October and December, migratory bald eagles arrive in California from areas north and northeast of the state. The wintering populations remain in California through March or early April.

The California bald eagle nesting population has increased in recent years from under 30 occupied territories in 1977 to 151 occupied territories in 1999 (Jurek 2000). Based upon annual wintering and breeding bird survey data, it is estimated that between 100-300 bald eagles winter on National Forests in the Sierra Nevada, and at least 151-180 individuals remain year-round to breed (Forest Service 2000). Most of the breeding population is found in the northern third of the state, primarily on public lands. Seventy percent of nests surveyed in 1979 were located near reservoirs (Lehman 1979) and this trend has continued, with population increases occurring at several reservoirs since the time of that study. In the Pacific recovery region, which includes the Mokelumne watershed, population goals as set forth in the Recovery Plan (USFWS 1986) have been met. The Sierra Nevada management zone of the Recovery Plan however, has not reached its goal of 15 occupied territories: in 1999 there was a total of nine occupied territories in this management zone. Though the Sierra Nevada is only at 60 percent of the recovery goal, it has steadily increased since 1986 when there were only two known occupied territories in this management zone.

The observed increase in population is believed to be the result of a number of protective measures enacted throughout the range of the species since the early 1970s including listing of the species. These measures include the banning of the pesticide DDT, protection of nest sites, and protection from shooting.

The CDFG's fish stocking program throughout California's lakes, reservoirs and rivers has provided an abundant prey base of fish for the bald eagle. In the northern California lakes, 4,000 pounds (lbs) (1814.4 kilograms (kg)) of salmonids are stocked in approximately 57 bodies of water each year. That includes approximately 200-350 lb (90.7-158.8 kg) of fish 10-12 in (25.4-30.5 cm) in length. For recreational fishing, 70,000 lbs (31752 kg) of fish averaging approximately 0.5 lbs (0.2 kg) each are annually stocked in approximately 62 different bodies of water in the southern Sierra Nevada. In stocking programs in northern California, up to 20 percent of the released hatchery trout may die soon after release and many initially inhabit the top of the water column because of increased oxygen levels there. In one study, bald eagles were observed taking fish carrion at the stocking location at the Shasta Reservoir (Detrich 1978).

Though the construction of dams has limited the range of anadromous fish, an important historic bald eagle prey base, reservoir construction and the stocking of fish in reservoirs in the west has provided bald eagles with habitat for population expansion following their mid-century decline which resulted from DDT poisoning, degradation of historical nesting habitat, and persecution by humans (Detrich 1986, USFWS 1986). Food habitat studies of reservoir-nesting bald eagles in the west have focused on populations in northern California and Arizona (Hunt et al. 1992, Jackman et al. 1999).

Potential risk factors to the bald eagle from resource management activities include modification or loss of habitat or habitat components (primarily large trees) and behavioral disturbance to nesting eagles from vegetation treatment, facilities maintenance, recreation, or other associated activities within occupied habitat, which could prevent or inhibit nesting or lead to nest failure (Forest Service 2001).

The draft California Bald Eagle Habitat Management Guidelines recommends that management eliminate human disturbances at nesting areas during the breeding period, and it gives examples of closures that include signs, road closures, floating booms, and prohibition of shoreline moorage (Forest Service 1977). Similar closures have been implemented at other locations in California that include: Shasta Lake, Little Grass Valley Reservoir, Stampede Reservoir.

For delisting to occur, the Pacific Bald Eagle Recovery Plan identifies four criteria: (1) a minimum of 800 nesting pairs in the Pacific recovery area; (2) average reproductive rate of 1.0 fledged young per pair, with an average success rate per occupied site of not less than 65%; (3) attainment of breeding population goals in at least 80% of the management zones with nesting potential; and (4) stable or increasing wintering populations.

Within the Tahoe National Forest, three breeding territories have been identified in the 1990's-- Stampede, Boca, and Bullards Bar reservoirs—with an additional breeding territory on private land at Milton Reservoir. The Bullards territory is the only one located within the Downieville District.

Outside of the Tahoe National Forest, a territory is reported to occur at Collins Reservoir, 10 miles to the southwest, and Little Grass Valley Reservoir in the Plumas National Forest, approximately 7 miles northwest.

The Plumas and Tahoe National Forests lie within Zone 28 (Sierra-Nevada Mountains) of the Pacific Bald Eagle Recovery Area (USFWS 1986). Recovery goals identify a target of three territories at New Bullards Bar Reservoir, and one territory each for Stampede, Boca, and Jackson. Considering the previously-mentioned territories in the Tahoe NF (assuming the Milton Reservoir territory substitutes for Jackson because of its close proximity), recovery goals for the numbers of territories have been met at the other three sites; they have not been met at New Bullards Bar Reservoir.

The Pacific Bald Eagle Recovery Plan (USFWS 1986) task 1.32 recommends maintaining and improving forested habitat in both the breeding and wintering range for the bald eagle, including the preservation of snags in bald eagle use areas (Task 1.3215). Recovery Plan task 1.332 recommends excluding logging within 800 m (0.5 miles) where the activity is within line of sight, otherwise within 400 m (0.25 miles) of bald eagle use areas during critical periods of use, including the wintering and nesting season. The nesting season occurs approximately between January 1st and August 31st, or when fledglings actually leave the nest. The wintering season occurs approximately from November 15 to March 15. Other Recovery Plan tasks include, developing public information programs, improved enforcement of eagle protection laws, restricting human disturbance at eagle use areas, and surveillance in habitats where eagles are vulnerable to human disturbance.

Removing wood debris at New Bullards Bar Reservoir has probably disturbed eagles in the past. During the 1980's and early 1990's, woody debris was piled and burned along the water's edge, in order to remove accumulated fuels and prevent hazardous logs from floating into the water when the water level is high. These burn piles were distributed along the shoreline, and the piles were burned in the winter, when eagles concentrate at the Reservoir to feed and roost. In the mid-1990's, wood was gathered in booms, moved to accessible beaches, piled into large piles and subsequently burned. During 1999, wood was boomed close to an active nest during breeding season; and in 1994, blasting of a debris pile occurred in close proximity to an active nest during the breeding season. Although not necessarily the cause, eagles failed to breed for three seasons following 1994. The lack of breeding roughly corresponds with the same year that the California Department of Fish and Game stopped stocking the reservoir with adult kokanee, but planted fingerlings instead. Lowered foraging opportunities could have delayed eagle breeding for several years, while the fingerlings were growing (Forest Service 2002).

The Yuba County Water Agency, the U. S. Forest Service, and the USDI Fish and Wildlife Service have been working together to develop a New Bullards Bar Reservoir Fish and Wildlife Management

Plan. The plan is presently in draft form (April 11, 2002) and is designed to be a working document. The draft plan identified two to three expansion breeding territories, which were unmapped at that time. Three are submitted with this Biological Assessment (Figure 4 - Appendix B), and they are intended to be incorporated into the plan.

Bald eagle habitat, both nesting and wintering, occurs in many areas around Bullards Bar Reservoir. Forest Service recreation personnel regularly report bald eagle activity and potential nesting activity that they observe in the area. Two routes occur within the District that are part of the nationwide annual mid-winter bald eagle survey--one along the North Yuba River for a 14 mile stretch west of the town of Downieville, and the second conducted by boat around the perimeter of Bullards Bar Reservoir. These surveys, conducted since 1990, have produced an occasional individual eagle wintering along the North Yuba River, and a range of 10 to 20 individuals wintering at Bullards Bar Reservoir. This is the largest wintering concentration of eagles identified within the Tahoe National Forest.

Within the Reservoir, wintering habitat generally consists of a 200-foot perimeter along the high water mark, where eagles perch to forage. Winter surveys have identified scattered individual eagles perching along the water's edge, with certain areas used more regularly than others (Figure 5 - Appendix B). Eagles are often seen foraging at the mouth of Willow Creek. Bullards dam is a frequently used diurnal area where wintering eagles congregate, and they are often seen foraging and perching in a cove just east of the dam, especially when the kokanee salmon congregate to spawn. Observations of eagles at the dam show that eagles begin congregating at the dam when the kokanee salmon are spawning. The actual timing of kokanee spawning is dependent on the timing of temperature changes and rainfall. This typically occurs in November, but it may vary each year, and it occasionally occurs in October (Forest Service 2002).

The west-side of the dam provides fewer perching opportunities because of the Emerald Cove marina and a large boat and motor vehicle parking area 100 feet above it. These developments increase human disturbance and displace vegetative perching structures. The cove on the east-side of the dam is well vegetated with large trees, provides some thermal cover, sturdy perching branches, and visual screening from Marysville Road, which runs above it. Eagles are often seen perching in these trees and on rocks at the water's edge, and flying from perches over the water. Other frequently used places around the reservoir include prominent points and the Garden Point peninsula. A boom located just below this cove effectively limits shoreline access by boat.

A winter communal roost was recently discovered (January 2000) within a sheltered multi-storied stand along the water's edge (Figure 5 - Appendix B). At least eight eagles were counted at this roost. The field observer noted frequent vocalizing and social interactions between individuals at this

site. Low light conditions around dusk and dawn, multi-layered closed-canopy stands, and cryptic coloring that camouflages immature eagles—all these, make observations of the night roost difficult.

A pair of breeding eagles have had a nesting territory at the Reservoir on the Garden Point peninsula since 1989 (Figure 4 - Appendix B). Monitoring at the reservoir indicates that the breeding pair are year-round residents. During years that the pair fledge young, adults and young are often seen in the nest territory through the fall. There is no indication that other eagles frequent the territory, as sightings appear to be limited to one to two adults.

The same nest tree was used through 1999, located on the west side approximately 1000 feet above a cove highly frequented by recreationists in boats. Thirteen young were fledged between the years 1989-99. In October of 1999, the Pendola Fire burned intensely through the nest stand, killing the nest tree and surrounding trees. The eagles built a new nest in a stand of green trees above Tractor Cove, approximately 0.25 miles southeast of the original one. Tractor Cove was a very popular boating and camping area. Since the discovery of the new nest, Reservoir management has implemented administrative closures during the breeding season within Tractor Cove and on the land that includes the access road to the Garden Point peninsula. Buoy closures limit boating access to within 0.25 miles of the nest tree on the north side, and approximately 0.5 miles to the south. The nest failed in 2000, but one young has fledged in each of 2001 and 2002. Figure 2 (Appendix B) shows the most recently active nest in proximity to the coves proposed for stockpiling wood.

A necessary criteria for recovery identified in the Pacific Bald Eagle Recovery Plan is an average reproductive rate of 1.0 fledged young per pair, with an average success rate per occupied site of not less than 65 percent per 5-year period. The Garden Point pair have met these goals, with a current average of 1.0 fledged and an average 5-year success rate of 80 percent.

In the spring of 2000, a boat survey of the Reservoir was conducted to look for additional breeding territories; none were found. Summer observations do not indicate that more than one breeding pair is present at the Reservoir. In January, during annual winter bald eagle surveys, large nests are mapped and checked in the summer to see if eagles are using them. To date, all surveys have only identified the presence of one breeding pair at Bullards Reservoir. Additional adults, even single adults, are not known to be present during the summer. Because eagles are frequently seen within and near the breeding territory year round, it is assumed that both members of the breeding pair are year-round residents.

In 2003, a fourth-year adult was frequenting the Frenchy Point and North Yuba River areas of the Reservoir, and it has been near a second adult eagle. It is not known if the adult is from the existing breeding pair, or if there is a second pair of eagles establishing residence. Forest Service Downieville

District personnel, in cooperation with the Yuba County Water Agency, monitor eagle activity at the reservoir, and if eagles establish a new breeding territory, the Service will be notified and any necessary consultation would be re-initiated at that time (Forest Service 2003).

Effects of the Proposed Action

Direct effects are the direct or immediate effects of the project on the species or its habitat (USFWS, NMFS 1998). Bald eagles breed, roost, and forage at New Bullards Bar Reservoir year-round. Wintering bald eagles congregate in the vicinity of New Bullards Bar Dam during the kokanee spawning run that occurs between October and November. Hazard trees may be identified in the vicinity of parking areas immediately to the east and west of the dam (Forest Service 2002). Skagen et al. (1991) observed that following disturbance, bald eagles seldom returned to feed that day. Noise and smoke generated by hazard tree removal, fuel reduction, woody debris collection, and pile burning activities may result in temporary avoidance of nesting, foraging, or roosting habitat by breeding and wintering bald eagles.

Modification of habitat used by bald eagles may result in an immediate decrease in foraging, nesting, and roosting opportunities for eagles currently using the reservoir for breeding and wintering if alternate nesting, roosting, and perching structures are not available. Most hazard trees are either dead (snags) or dying trees. Lehman (1979) found that 70 percent of the nest trees surveyed were classified as highly susceptible to beetle infestation, probably a function of bald eagles using mature and over mature trees. Trees with characteristics described in the Field Data Form may also possess the characteristics, such as exposed lateral limbs or dead tops, that provide suitable habitat for bald eagles. The Biological Assessment (Forest Service 2002) identifies areas, such as along the east and west sides of New Bullards Bar Dam, where eagle perching structures may be identified as hazard trees and removed.

Indirect effects are those effects that are caused by or will result from the proposed action later in time, but are still reasonably certain to occur. The proposed action is expected to modify actual or potential bald eagle nesting, roosting, or foraging habitat. Modification of habitat that may provide future nesting, roosting, or foraging habitat may reduce the likelihood that the target number of three nesting pairs of bald eagles at New Bullards Bar Reservoir is achieved. In 2003, two new eagles were observed at Frenchy Point (Forest Service 2003). At this time it is unknown whether these eagles are attempting to establish a new breeding territory at New Bullards Bar Reservoir. Frenchy Point is immediately south of Long Point, one of the potential nesting territories identified in the Biological Assessment (Figure 4 - Appendix B). Noise from the operation of heavy machinery and removal of potential nesting, roosting, and foraging structures may adversely affect selection of the Reservoir as a breeding territory by a new pair of eagles.

Additionally, bald eagles may be harmed later in time if individual health and fitness and/or reproductive success is affected by increased levels of harassment. Noise, operation of large equipment, smoke from pile burning, and additional human presence in nesting and wintering areas may result in flushing of foraging, roosting, or nesting bald eagles. Flushing increases energy expenditures due to flight, decreases energy intake by interfering with feeding, and may force eagles to leave preferred habitat (Stalmaster and Kaiser 1998).

Although noise and operation of large equipment around administrative sites for the purpose of fuels reduction may disturb eagles in nearby areas, the removal of ladder fuels will have the beneficial effect of reducing the likelihood of human-caused fires starting at a campground or day use facility in the project area. This will help prevent a stand-replacing fire that could remove mature trees that presently provide existing and potential nesting and perching structures.

Effects of the Conservation Measures

Conservation measures represent actions pledged in the project description that the agency will implement to further the recovery of the species under review. Such measures may be tasks recommended in the species' recovery plan, should be closely related to the action, and should be achievable within the authority of the action agency or applicant. Conservation measures are part of the proposed action, and their implementation is required under the terms of the consultation (USFWS, NMFS 1998). The Forest Service has incorporated conservation measures into the description of the proposed action to reduce or avoid adverse impacts to bald eagles resulting from project activities, and that address specific tasks in the *Pacific Bald Eagle Recovery Plan* (USFWS 1986).

Limited Operating Periods (Measures 2-4). The proposed limited operating periods will help to avoid conflicts between project related activities and wintering/nesting bald eagle areas in current use. The Forest Service has also extended limited operating periods to expansion territories identified in the Bullards Bar Fish and Wildlife Management Plan until it is determined that eagles have not established residence within those areas (Figure 4 - Appendix B).

Removal of Hazard Trees (Measure 5). The Field Data Form requires review by a biologist prior to removing any tree identified as a hazard that is 15 inches dbh or greater. In addition, only trees with a Target Rating and a Defect Rating shall be considered for removal. For example, even if a tree is evaluated as having a high Defect Rating, it would not be removed if it exists in a Low Use Area (Figure 3 - Appendix B) that would receive "no score" as a Potential Target Rating on the Field Data Form. This will allow more trees to be available as perching, nesting, and roosting structures.

Reinitiation of Consultation (Measure 9). Once pile burning for woody debris disposal begins, wood consumption should be complete within several days. However, it is possible that air quality restrictions on burning, combined with the uncertainty of when fall rains begin, could delay burning too late to dispose of woody debris prior to the November 15 limited operating period for wintering eagles. The Forest Service expects that in most years, wood can be burned prior to November 15. With the coves set aside for woody debris storage in the proposed action, wood can be held over to the following year if pile burning is not completed. The project description for the proposed action requires reinitiation of consultation if emergency consultation is sought in two out of five years to dispose of woody debris outside of the proposed LOPs.

Other Listed Species (Measures 1, and 6-8). These measures provide written directives to field personnel via the Field Data Form to cease activities and contact a Forest Service biologist if eagles, large frogs, or elderberry plants are sighted within specified distances of project activities.

These proposed conservation measures will promote objectives identified in the Recovery Plan, including retention of eagle habitat and avoidance of human-bald eagle disturbance interactions.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Cumulative effects to eagles in the vicinity of the action area include: lowered reproduction caused by pesticides; loss of habitat through increased recreation; development of shorelines; private timber harvest; and disturbance from human activities. The number of summer recreationists has steadily increased at New Bullards Bar Reservoir since the late 1980's. These uses include: camping; hiking; fishing; boating; picnicking; motorized vehicular use; mountain biking; and reservoir maintenance. Shoreline camping is permitted along most shorelines. In October of 1999, the Pendola Fire burned 12,000 acres, removing approximately 1600 acres of mixed conifer stands with large trees (greater than 24 inches dbh), that provided potential nest or roosting trees for eagles.

The Service is not aware of specific projects that might affect the bald eagle or its habitat that are currently under review by State, county, or local authorities. Nevertheless, it is foreseeable that further development of residential and recreational uses, industry, transportation, and water resources, as well as continued timber harvest on private lands, will occur in the future. Some of these future activities

will not be subject to Federal jurisdiction (and thus are considered to enter into cumulative effects), and may result in loss of bald eagle habitat.

Conclusion

After reviewing the project description, current status of the bald eagle, the environmental baseline for the action area, the effects of the proposed New Bullards Bar Reservoir Safety and Annual Maintenance, the conservation measures incorporated into the project description, and the cumulative effects, it is the Service's biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the bald eagle. No critical habitat has been designated for this species, therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are non-discretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. The Forest Service has a continuing duty to regulate the activity covered by this Incidental Take Statement. If the Forest Service: (1) fails to adhere, or fails to require an applicant or permittee to adhere to the terms and conditions of the Incidental Take Statement through enforceable terms that are added to a permit or grant document; and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Take

The Service does not anticipate that bald eagles will be killed or injured as a result of the proposed action. The Service expects that incidental take of bald eagles will be in the form of harassment and harm. Bald eagles may be harassed due to increased levels of noise and smoke generated by hazard tree removal, fuel reduction, woody debris collection, and pile burning activities. Bald eagles may be harmed if individual health and fitness and/or reproductive success is affected by increased levels of harassment and decreased numbers of perch trees available for nesting, foraging, and roosting. The Service expects that incidental take of the bald eagle will be difficult to detect or quantify for the following reasons: (1) it will not be possible to separate the effects to bald eagle resident and migrant populations of varying disturbance levels resulting from the proposed action from the disturbance levels which are currently ongoing; (2) there is a low likelihood of determining that the reduced fitness of an individual is a result of the action; e.g., positively correlating a failed nest or abandonment of wintering ground with project induced harassment or harm of a bald eagle may only be speculative; (3) non-use of portions of New Bullards Bar Reservoir and the shoreline areas by foraging eagles will be difficult to detect.

The Service believes that the nesting bald eagles of New Bullards Bar Reservoir may be harmed or harassed as a result of the proposed project. Therefore, the Service estimates that two individual adult nesting bald eagles may be harmed or harassed per year as a result of the proposed project. The Service believes that wintering bald eagles may be harmed or harassed as a result of the proposed action. Therefore, the Service estimates that ten to twenty wintering bald eagles may be harmed or harassed per year as a result of the proposed action. Take in the form of harm or harassment is not authorized to an extent that would result in nest failure or mortality.

Upon implementation of the following reasonable and prudent measure, incidental take associated with the New Bullards Bar Reservoir Safety and Annual Maintenance in the form of harassment of nesting and foraging bald eagles due to increased levels of noise and smoke generated by hazard tree removal, fuel reduction, woody debris collection, and pile burning activities will become exempt from the prohibitions described under section 9 of the Act for direct impacts; in addition, incidental take in the form of harassment associated with the New Bullards Bar Reservoir Safety and Annual Maintenance in the form of harassment of nesting and foraging bald eagles due to increased levels of noise and smoke generated by hazard tree removal, fuel reduction, woody debris collection, and pile burning activities will be exempt from the prohibitions described under section 9 of the Act for indirect impacts as a result of the management activities described.

Effect of the Take

The Service has determined that this level of anticipated take is not likely to result in jeopardy to the bald eagle.

Reasonable and Prudent Measure

The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize incidental take of the bald eagle:

1. Minimize the impacts of project effects to the bald eagle throughout the proposed project area.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of ESA, the Forest Service must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

- a. Implement all aspects of the project description and all conservation measures as proposed on pages 2-10 of this Biological Opinion, with modifications noted in the following terms and conditions below.
- b. A copy of the August 7, 2003, *New Bullards Bar Hazard Tree Rating Form*, *New Bullards Bar Reservoir Hazard Tree Rating Form Supplement*, and *Short Term Mortality Indicators* shall be given to appropriate personnel (contract administrator) to ensure that all required mitigations are implemented. Should it not be possible to implement the required minimizations in the Description of the Proposed Action, the District Biologist shall be notified to evaluate the need for emergency consultation under the Endangered Species Act. Only trees with an appropriate rating and review shall be removed. Any additional trees shall receive the further evaluation in coordination with the Service prior to felling and removal.
- c. Snag retention standards as identified in the Sierra Nevada Forest Plan Amendment (Forest Service 2001) shall be met within this area (i.e. four snags per acre where present). The Biological Assessment contains a detailed explanation of the snag retention standards as they apply to Bullards Bar Reservoir (Appendix B). For hazard trees identified for removal within 200 feet of the shoreline, all snags will be sampled for a distance of approximately 0.25 miles in either direction. Additional live tree or other potential perching structures in this area may

also be noted. If snag retention standards would not be met as a result of proposed hazard tree removal, administrative closures shall be considered as an alternative to protect public safety. The construction or development of alternate bald eagle perching structures may also be considered, should public closures not be feasible.

d. Within high use foraging sites and winter night roosts identified in the Draft Bullards Bar Reservoir Fish and Wildlife Management Plan (or as revised in the future), multiple perching structures shall be maintained. The above standard of retaining four snags per acre is a minimal goal at these sites. Additionally, the following standard shall be applied:

i. Ninety percent of all potential perches that are present shall be retained; up to ten percent may be removed as hazards. If hazard tree removal would cause perching structures to be reduced below this level, administrative closures shall be considered as an alternative to hazard tree removal to protect public safety. The construction or development of alternate bald eagle perching structures may also be considered, should public closures not be feasible. Reducing perching structures in high use foraging sites and winter night roosts below ninety percent of what is present at the time of evaluation shall receive further consideration in coordination with the Service prior to felling and removal.

e. The Forest Service shall conform with the reporting requirements below.

Reporting Requirements

The Forest Service must provide the Service with annual reports to describe the progress of implementation of all the commitments in the Conservation Measures and Terms and Conditions sections of this biological opinion. The first report is due January 31, 2004, and annually thereafter. Reports shall include the number of snags removed and the location(s), updated copies of the maps in Appendix B of this opinion, and results of all bald eagle surveys conducted the previous year.

The Sacramento Fish and Wildlife Office is to be notified within three working days of the finding of any dead listed wildlife species or any unanticipated harm to the species addressed in this biological opinion. The Service contact person for this is the Chief, Endangered Species Division at (916) 414-6620.

The Forest Service must require any contractor or permittee to report to the Service immediately any information about take or suspected take of listed wildlife species not authorized in this opinion. The Forest Service must notify the Service within 24 hours of receiving such information. Notification must

include the date, time, and location of the incident or of the finding of a dead or injured animal. The Service contact is the Service's Law Enforcement Division at (916) 414-6660.

Any contractor or employee who during routine operations and maintenance activities inadvertently kills or injures a listed wildlife species must immediately report the incident to their representative. This representative must contact the California Department of Fish and Game immediately in the case of a dead or injured (*species*). The California Department of Fish and Game contact for immediate assistance is State Dispatch at (916) 445-0045.

The U.S. Fish and Wildlife Service Regional Office in Portland, and the Sacramento Fish and Wildlife Office, must be notified immediately if any dead or sick listed wildlife species is found in or adjacent to pesticide-treated areas, with information about the cause of death or illness, if known. The appropriate contact for the U.S. Fish and Wildlife Service Regional Office in Portland, Oregon, is Don Steffeck at (503) 231-6223. The appropriate contact for the Sacramento Fish and Wildlife Office is Ken Sanchez at (916) 414-6600.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of ESA directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities that can be implemented to further the purposes of the Act, such as preservation of endangered species habitat, implementation of recovery actions, or development of information and data bases.

1. Assist the U. S. Fish and Wildlife Service in further implementing recovery actions identified within the Recovery Plan for the bald eagle.
2. Conduct systematic surveys across the landscape to detect additional bald eagle nests and communal night roosts.
3. Monitor bald eagle responses to human generated disturbances, including threats and changes to bald eagle habitat. If the data results indicate bald eagles are exposed and negatively impacted by disturbances, consult with the Service on ways to minimize the impacts.
4. Promote public education regarding the importance and successes of conservation and protection of the bald eagle and other listed species. This can be done using signs in occupied habitat, brochures at ranger stations, and other mediums.

5. Non-system and other roads that lead to sensitive bald eagle habitat such as nesting, foraging, or roosting sites should be gated and bermed.

6. Protection and enhancement of fish habitat in occupied bald eagle use areas through the maintenance of streambank stability by restricting activities such as, but not limited to livestock trampling, OHV use, stream crossings, and recreational use.

7. Protection and enhancement of waterfowl habitat in occupied bald eagle use areas through the maintenance of riparian and lake shore vegetation (waterfowl nesting habitat) by restricting activities such as, but not limited to livestock trampling and grazing, OHV use, and recreational use.

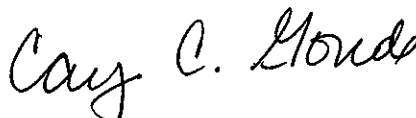
In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION--CLOSING STATEMENT

This concludes formal consultation on the action(s) outlined in the (request or reinitiation request). As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Please contact Ann Bowers or Roberta Gerson of this office at (916) 414-6600, if you have any questions.

Sincerely,



Wayne White
Field Supervisor



Steven T. Eubanks

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cc: U. S. Forest Service, Downieville Ranger District, Camptonville, CA (Attn: Jean M. Masquelier, Marilyn Tierney)

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**Appendix A
Field Data Form**

This Field Data Form will be used for judging hazard trees by tree defect and target potential. Rating: Tree Defect Rating + Target Potential Rating = Hazard Score. Tree/snag needs any combination of 4 points or greater to qualify as Hazard Tree (more than one category can be used to get a total of 4 or greater).

**New Bullards Bar Reservoir Hazard Tree Rating Form
(Field Data Form)**

Complete one form for each hazard tree proposed for felling and/or removal that is: 15 inches or greater diameter breast height* and within one mile of the Reservoir.

(*trees < 15 inches dbh must still comply with the management requirements described in the Supplement to this field form)

Location _____ GPS _____

Attach a map of location; or number trees and attach one map _____

Tree Species _____ dbh _____

Estimated distance from the water's edge _____ (< 200 feet requires snag monitoring)

Less than 200 feet _____ Within 0.25 miles _____ within 1 mile _____

Circle the points on the list below that you are selecting for this tree to rate the hazard:

Tree Defect Rating	Points
Tree is dead (no live crown), is straight or leans towards area of concern, and has the potential to reach site/facility	3
Green tree, ≥15" DBH and 20 feet tall or greater, and with an unnatural lean that exceeds 20 degrees towards the area of concern and is sufficiently tall to reach site/facility	2
Green tree, <15" DBH, and with an unnatural lean that exceeds 20 degrees towards the area of concern and is sufficiently tall to reach site/facility	1
Soil at base of tree shows evidence of recent movement (within the last 5 years) and has the potential to reach the area of concern (i.e. freshly exposed soil, cracks in soil)	2
Spike top tree where the dead portion of the tree has the potential to reach the area of concern	2
Trees showing signs of advanced symptoms of root diseases (trees infected with annosus root disease, black stain, Armillaria root disease, etc.) and have the potential to reach the area of concern (Ref: PSW-P1 1963. Wagener, Willis W. Judging Hazard from Native Trees in California Recreational	3

Areas.)

Trees expected to die within the next 6 months (see Appendix A, "Short-term Mortality Indicators") and have the potential to reach the area of concern. Attach Appendix A and circle rationale.	1
Mechanical and bole defects (including fire damage). Bole damage (cambium) exceeds one-third of the circumference for all species except sugar pine and has the potential to reach the area of concern. Bole damage (cambium) on sugar pines exceeds 50% of the circumference and has the potential to reach the area of concern	3
Exposed root wad of a tree that is sufficiently tall to reach area of concern	3
Trees showing symptoms of advanced branch, bole or basal decay due to root disease or heart rot. Total solid rind thickness is less than one-third of the diameter at the point of decay, and the tree has the potential to reach the area of concern.	3

Target Potential Rating*	Points
High Use (designated recreation sites, shoreline area used twice/week or more on average)	4
Moderate Use (specific shoreline area or other area used once/week on average)	2
Low Use (general forest or shoreline area with little to no use)	No score

Circle the Management Action Selected, from the list below

Management Action	Hazard Score
Cut down tree or remove dead or injured portion of tree; or close site/facility	7
Remove hazard from highest score to lower score with available funds	6-4
No action required (unless special circumstances dictate)	≤3

Tree must have both a Defect and a Target rating to be considered a hazard tree (i.e. if either the defect or target rating is 0, the tree is not considered a hazard).

Enter the numerical values selected from the above tables:

Defect rating _____

Target rating _____

TOTAL HAZARD RATING _____

Prepared by: _____ Title: _____ Date: _____

Additional comments or documentation for hazard:

Are there any elderberry bushes within 200 feet of this tree? _____ (Surveys are required for all unsurveyed sites.) If elderberry bushes are present, no action may occur until a determination is made regarding the need for additional consultation with the U. S. Fish and Wildlife Service.

Supplemental Information is included with this form to identify the actions submitted for consultation regarding hazard tree removal in the vicinity of Bullards Bar Reservoir, including the management requirements that are considered to be a part of the proposed action.

Prior to tree removal, return this form to the District Biologist.

TES habitat information:

Bald eagle: _____

Winter foraging _____

Winter roosting _____

Active Breeding _____

Alternate Breeding Territories _____

California red-legged frog? _____

Valley elderberry longhorn beetle _____

Forest Service Sensitive _____

Snag documentation needed? ___ If yes, provide: _____

Additional Mitigations necessary? (i.e. snag replacement) _____

Recreation, note any revisions to public use map that are needed: _____

APPENDIX A: SHORT TERM MORTALITY INDICATORS

The following conditions indicate that the affected trees have a fatal, non-reversible condition and are very likely to be dead within 6 months. Some trees under severe drought-stress may show no external sign of being attacked by beetles. Any tree, which has life stages or galleries of any species of beetle, except red turpentine beetle, visible when bark is removed with an axe, should be expected to die within 6 months. Trees infested with only red turpentine beetle must be physically girdled around at least 40 % of the tree circumference to be expected to die within 6 months.

- A. Pines. (Ponderosa, Jeffrey, sugar and western white pines).
- (1) Top one third of crown faded down to a stem diameter of at least 6 inches. (Crown fading will follow a rapid progression of colors from pea-green to straw-yellow to orange to brick-red to brown. The size limitation indicates infestation by a species of *Dendroctonus* bark beetle).
 - (2) Fresh, sticky pitch tubes located on the bole between 2 and 20 feet above the ground. Pitch tubes must be reddish in color (pink, rosy, red, purplish-red, reddish-brown). Number of fresh pitch tubes must be at least equal or greater than half of the DBH in inches (i.e. a 12 inch DBH pine must have at least 6 fresh, reddish pitch tubes). Crown may be any color.
 - (3) Fine, dry red frass (boring dust) accumulated in bark crevices, or cobwebs, or on ground around base of pine tree. (This does not include the coarse, crumbly frass produced by red turpentine beetle, which is often resinous.) Amount of frass per tree must total at least one tablespoon to be considered significant. Crown may be any color.
 - (4) Conspicuous removal of bark by woodpeckers. Outer bark of ponderosa pines usually removed in patches of several square inches to reveal reddish inner bark. Woodpecker work on Jeffrey, sugar and western white pines usually a vertical series of 3/8 inch diameter holes at about 1 inch spacing on bark plates. Bark flakes usually accumulate on ground or snow under tree. Crown may be any color.
 - (5) Blowdown.
- B. White fir.
- (1) Crown currently faded down to a stem diameter of 4 inches or greater. Crown color will rapidly change from pea-green to yellow to orange to brick-red to brown. Size limitation indicates the fir engraver (*Scolytus ventralis*) is infesting the main stem.
 - (2) White frass (boring dust) accumulated in bark crevices, cobwebs or around base of fir tree. Amount of frass per tree must total one tablespoon to be significant. Crown may be any color. (White frass indicates either no pitch flow in response to fir engraver attack, or successful infestation by ambrosia beetles. Either condition indicates a dying fir tree.)
 - (3) Ground or snow below white fir tree covered with "green" needles. This does not include normal fall shedding of older yellow needles.
 - (4) Blowdown.
- C. Red fir.
- (1) No limbs with normal-color green foliage left in crown.
 - (2) White frass (boring dust) accumulated in bark crevices, cobwebs or around base of fir tree. Amount of frass per tree must total one tablespoon to be significant. Crown may be any color. (White frass indicates either no pitch flow

in response to fir engraver attack, or successful infestation by ambrosia beetles. Either condition indicates a dying fir tree.)

(3) Blowdown.

D. Douglas-fir.

(1) At least one accumulation of rusty-orange frass (boring dust) per foot of circumference. The piles of frass will be approximately $\frac{3}{4}$ inch in diameter and will be located in bark crevices in the lower 3 feet of the bole. (This indicates successful attack by the Douglas-fir beetle.)

(2) Trees have not broken bud while all adjacent trees have broken bud. Buds are drying and are not firm.

(3) Woodpeckers have removed at least several square inches of bark from the bole portion which has bark less than 1.5 inches in thickness. Crown may be any color, including green. Ignore single, deep woodpecker holes near the base of old, thick-barked trees (the woodpeckers at the base are usually seeking ants in the bark, which are not a threat to the tree).

(4) No limbs with completely normal-color foliage remaining on tree.

(5) Blowdown.

E. Incense-cedar.

(1) No limbs with completely normal-color foliage remaining on tree.

(2) Blowdown.

NEW BULLARDS BAR RESERVOIR HAZARD TREE RATING FORM SUPPLEMENT

A copy of the conservation measures in the project description and the Field Data Form should be given to appropriate personnel (contract administrator) to ensure that all required minimizations are implemented. Should it not be possible to implement the required minimizations, the District Biologist should be notified to evaluate the need for emergency consultation under the Endangered Species Act. To ensure that Forest Service legal obligations are met, only trees with an appropriate rating and review should be removed; any additional trees should receive the appropriate evaluations prior to felling and removal.

Appendix B

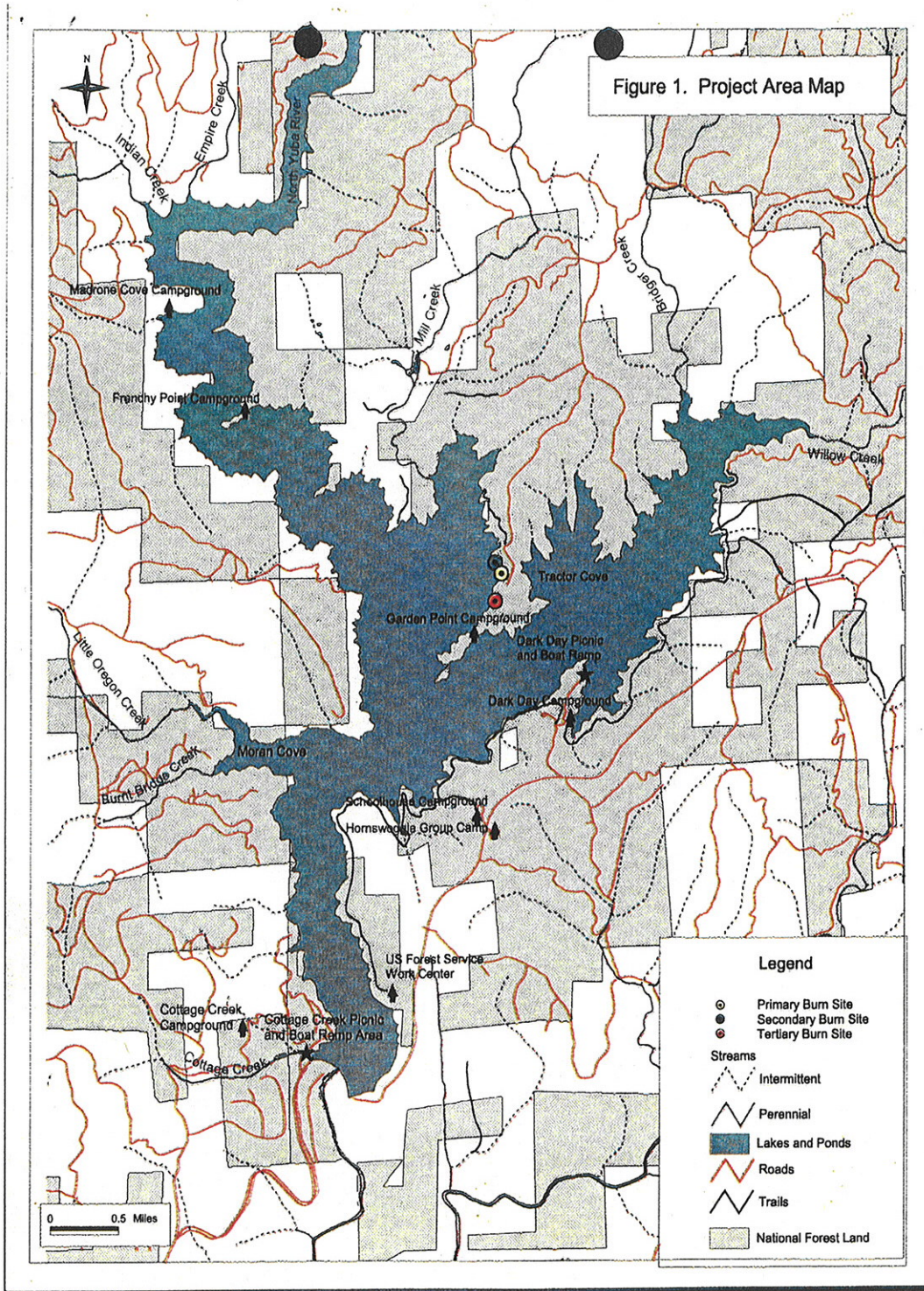


Figure 2. Woody Debris Treatment Coves

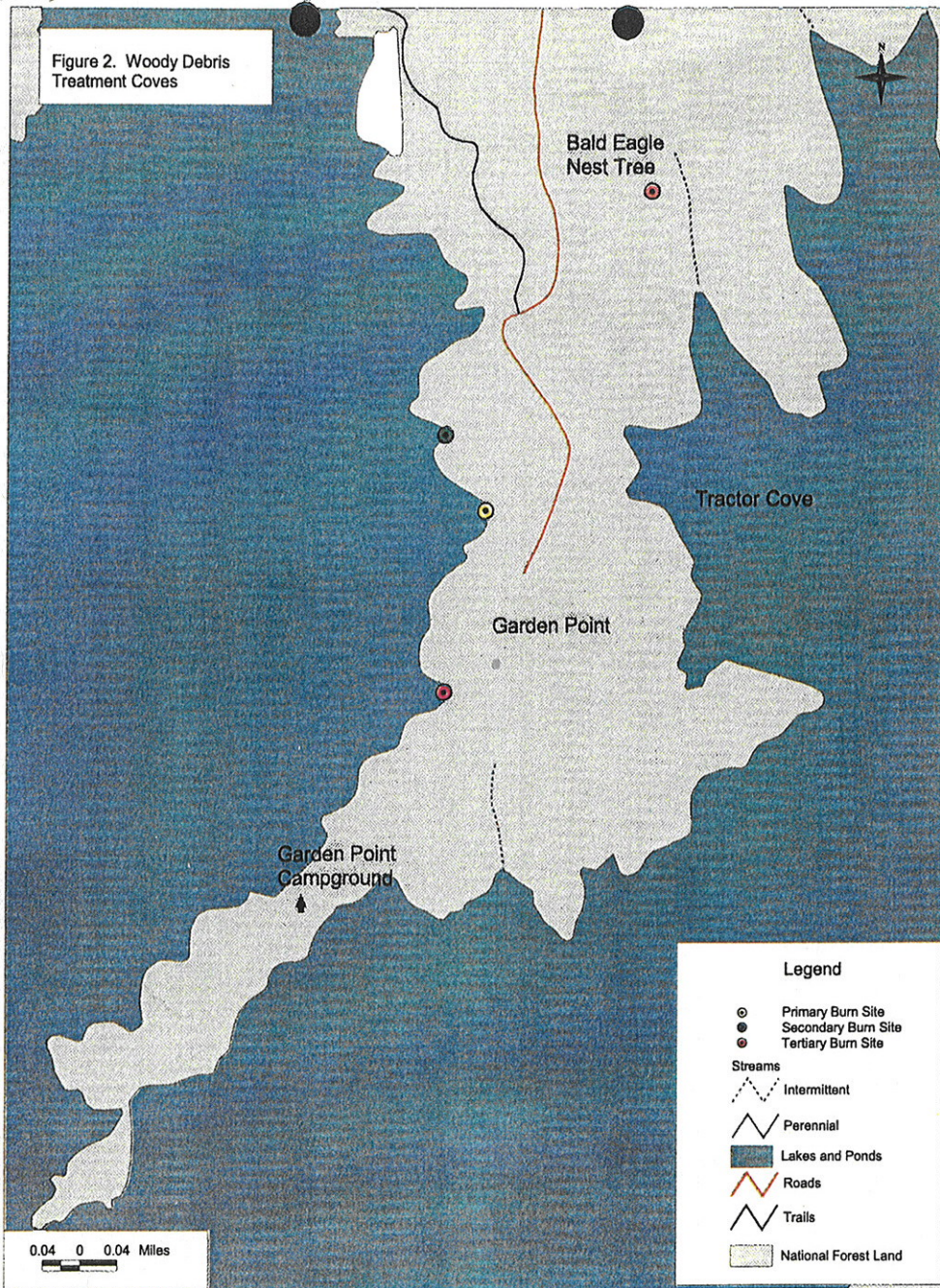


Figure 3. Levels of Recreational Use at New Bullards Bar Reservoir

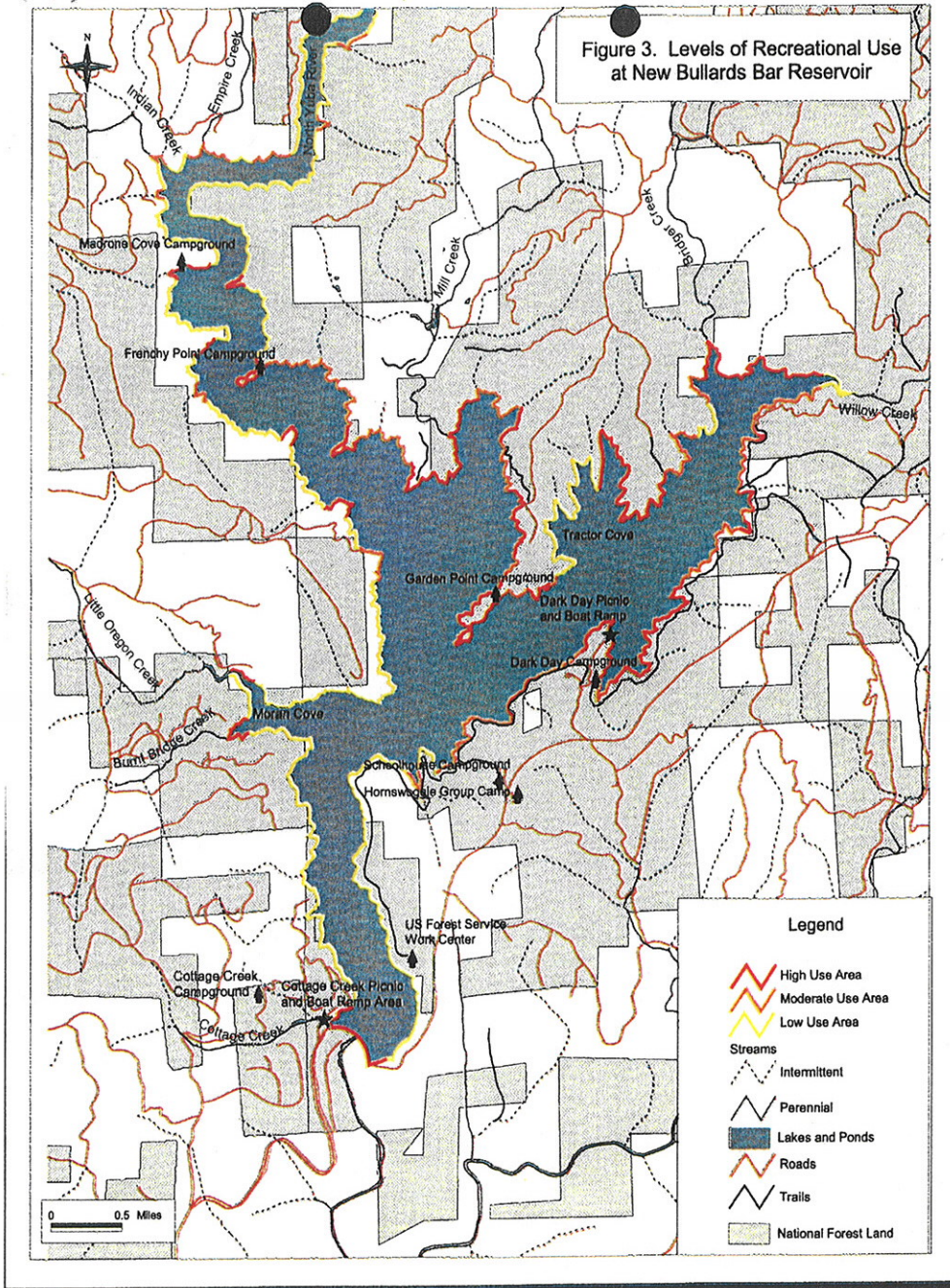


Figure 4. Bald Eagle Breeding and Expansion Territories

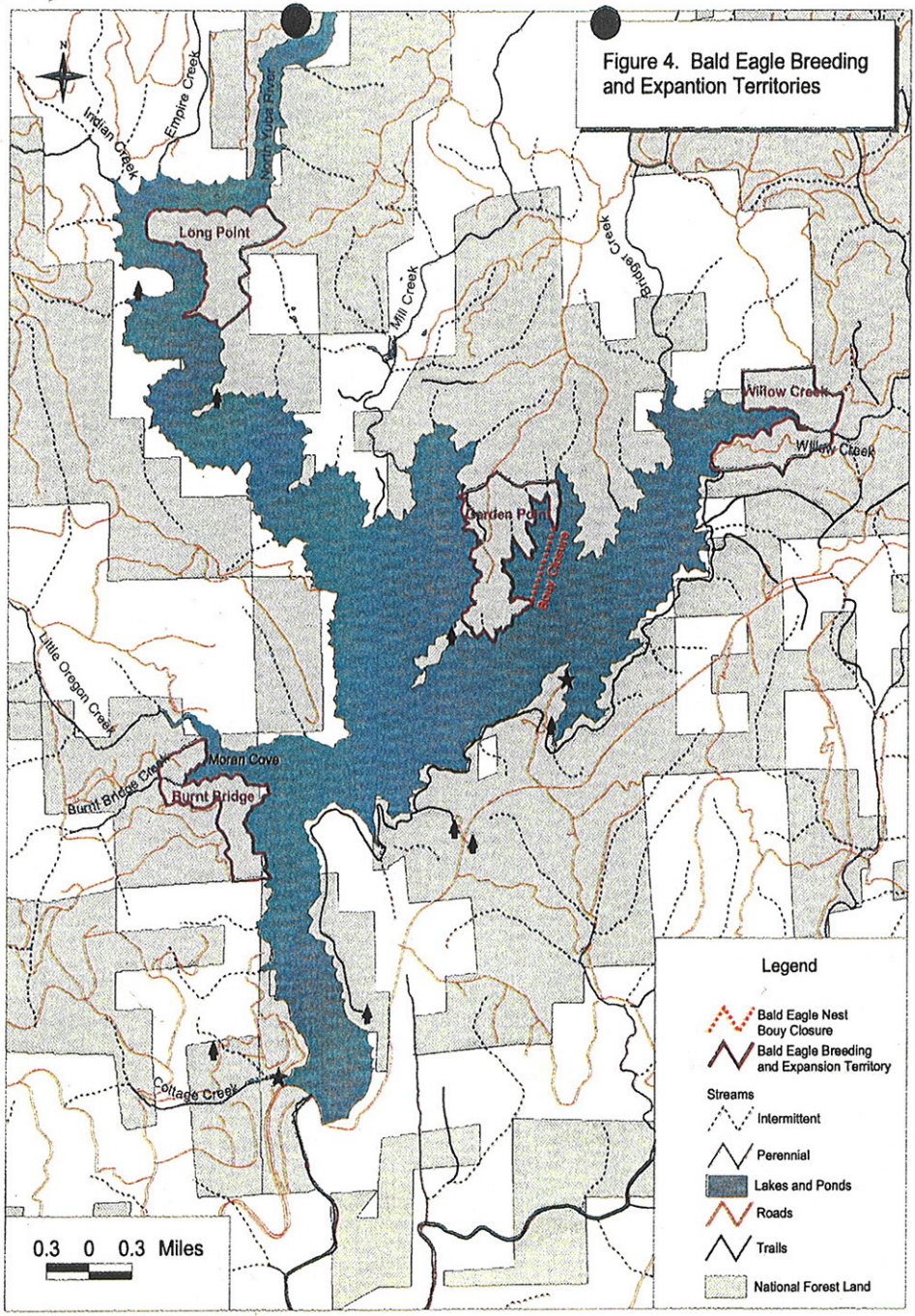
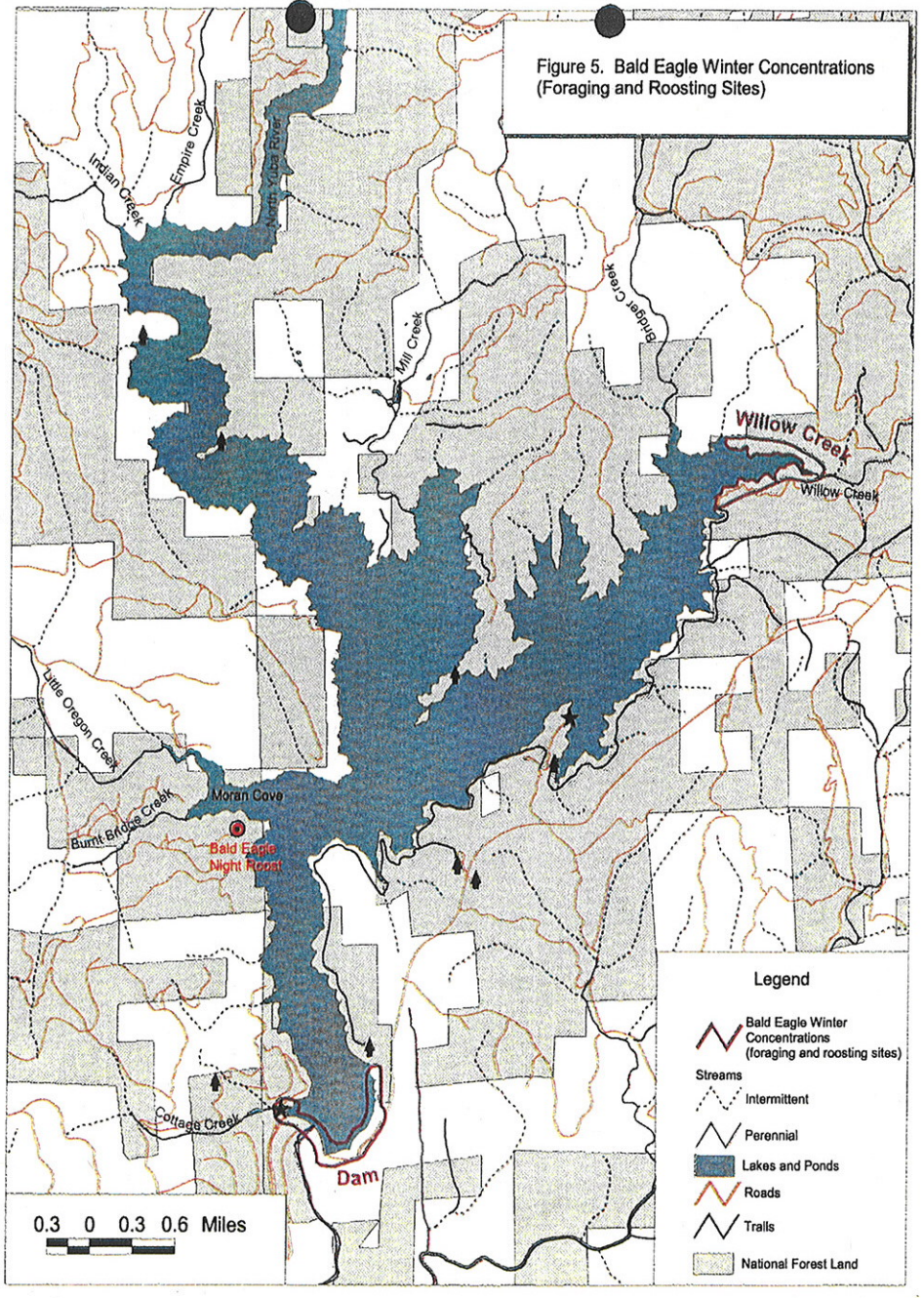


Figure 5. Bald Eagle Winter Concentrations (Foraging and Roosting Sites)



Appendix C

Rationale for Snag retention Standards

The Sierra Nevada Forest Plan Amendment (USDA Forest Service 2001) Forestwide Standard and Guidelines for snag retention are to retain four of the largest snags per acre in westside mixed conifer and ponderosa pine forest types. In westside hardwood ecosystems these may be hardwood or conifer (Record of Decision, Appendix A – 28). Snags are to be larger than 15 inches dbh to meet this standard, and snag density is to be evaluated on a 10-acre basis. However, the defense zone of the urban wildland intermix zone and developed recreation sites are exempt from this standard and guideline.

Foraging Habitat:

Developed recreation sites (Figure 1 - Appendix B) are exempt from this standard and guideline. Defense and Threat Zones are unmapped land allocations, which may change with site-specific analysis in the future. At the present time, most of the land surrounding the reservoir lies within a threat zone, rather than a defense zone. Defense zones, do, however, overlap some areas of the shoreline at the present time. These areas may be refined in the future, at the time of project level analysis. Because the shoreline perimeter is foraging habitat for bald eagles, a federally protected species, until this site-specific analysis is conducted, for the 200-foot shoreline area that is outside of developed recreation sites, the snag retention requirement of four snags per acre should extend to this 200-foot zone, irregardless of the fuels zone that is presently mapped. Therefore, for actions associated with the Bullards Bar Reservoir Safety and Annual Maintenance Project, the four-snag per acre standard is applied outside of developed recreation sites, evaluated on a 10-acre basis (200 feet wide by 2178 feet of shoreline, or approximately 0.41 miles of shoreline).

Breeding and Expansion Territories:

A similar rationale is applied for routine hazard tree removal within bald eagle breeding territories (occupied and expansion); the four-snag-per-acre standard applies, evaluated on a ten-acre basis.

