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SAFE HARBOR AND COOPERATIVE HABITAT ENHANCEMENT AGREEMENTS

LAKE CHAPLAIN TRACT

JULY, 2015

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Acronyms and Abbreviations

CHEA	Cooperative Habitat Enhancement Agreement
CT	commercial thinning
DBH	diameter at breast height
EIS	Environmental Impact Statement
ESA	Endangered Species Act
Everett	City of Everett, Washington
Forest Practices Rules	Washington Forest Practices Rules and Regulations
GIS	geographic information system
HCP	habitat conservation plans
IA	Implementation Agreement
LCT	Lake Chaplain Tract
Permit	Enhancement of Survival Permit
PCT	pre-commercial thinning
PUD	Public Utility District No. 1 of Snohomish County
RMAP	Road Maintenance and Abandonment Plan
SEPA	Washington State Environmental Policy Act
SHA	Safe Harbor Agreement
SMA	Special Management Area
SOSEA	Spotted Owl Special Emphasis Area
SSA	Special Set-Aside
State	State of Washington
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources

1 Introduction

The City of Everett (Everett) is submitting a forest management plan for its Lake Chaplain Tract (LCT), in Snohomish County, Washington (Figure 1-1). This plan is formally an application for permits and assurances to the U.S. Fish and Wildlife Service (USFWS) and Washington Department of Natural Resources (WDNR). Specifically, Everett seeks approval of two permits or agreements with these agencies, each for a term of 50 years. First, Everett seeks an Enhancement of Survival Permit (Permit) for this Safe Harbor Agreement (SHA) from USFWS under Section 10(a)(1)(A) of the Endangered Species Act (ESA) of 1973, as amended (16 United States Code [U.S.C.] 1531 *et seq.*). Second, and concurrent with the first action, Everett seeks approval by WDNR of a Cooperative Habitat Enhancement Agreement (CHEA), as allowed under Washington Administrative Code (WAC) 222-16-105 of the Washington Forest Practices Rules and Regulations (Washington Forest Practices Board 2013) (Forest Practices Rules).

A SHA is a voluntary Agreement between the USFWS and a property owner that describes management activities that the property owner will perform that are intended to benefit ESA listed species. In exchange, the landowner receives assurances the USFWS will not require additional, or different, management activities by the landowner for the benefit of species covered by the plan.

The covered species are the marbled murrelet (*Brachyramphus marmoratus*) (murrelet), federally listed as threatened in California, Oregon, and Washington on September 28, 1992 (U.S. Fish and Wildlife Service 1992a) and the northern spotted owl (*Strix occidentalis caurina*) (spotted owl), federally listed as threatened on July 23, 1990 (U.S. Fish and Wildlife Service 1990a) (covered species). Under the provisions of this SHA/CHEA, Everett will expand implementation of voluntary conservation measures that are expected to provide net conservation benefits to the covered species. Under the SHA, Everett will be allowed to conduct forest management activities in a predictable manner with the knowledge that federal actions under the ESA will not restrict these activities.

A CHEA is a voluntary agreement between the WDNR and the landowner that describes management activities the property owner will practice that are intended to benefit northern spotted owls and/or murrelets. Under the CHEA, Everett will be assured that it will be able to conduct future forest management activities under Forest Practices Rules without restrictions relative to murrelets and spotted owls.

1.1 Goals and Objectives

The goal for USFWS is to provide greater conservation and protection for listed species under the ESA than would occur under Section 9 (ESA "take" prohibition). By providing landowners with incentives to create and enhance habitat for listed species, such as Safe Harbor Agreements and Enhancement of Survival Permits, USFWS improves its ability to conserve and protect listed species.

The goal for WDNR is to contribute to murrelet and spotted owl conservation through agreements such as the CHEA. The intent of a CHEA is to remove disincentives for landowners who create, enhance, or maintain habitat for murrelets or spotted owls by providing them with protection against murrelet or spotted owl Forest Practices Rules which may be triggered due to habitat enhancement activities.

The objectives for Everett are to contribute to the conservation of murrelets and spotted owls while continuing long-term forest management activities without concern that ESA "take" prohibitions will greatly impact income from forest management should a murrelet or spotted owl occupy the LCT forest

lands. In addition, Everett expects that by agreeing to follow the provisions of this plan, forest management activities may be conducted without concern that current and future Forest Practices Rules, relative to murrelets and spotted owls, will restrict its ability to manage their lands as put forth in this agreement.

1.2 Contents of this Safe Harbor Agreement

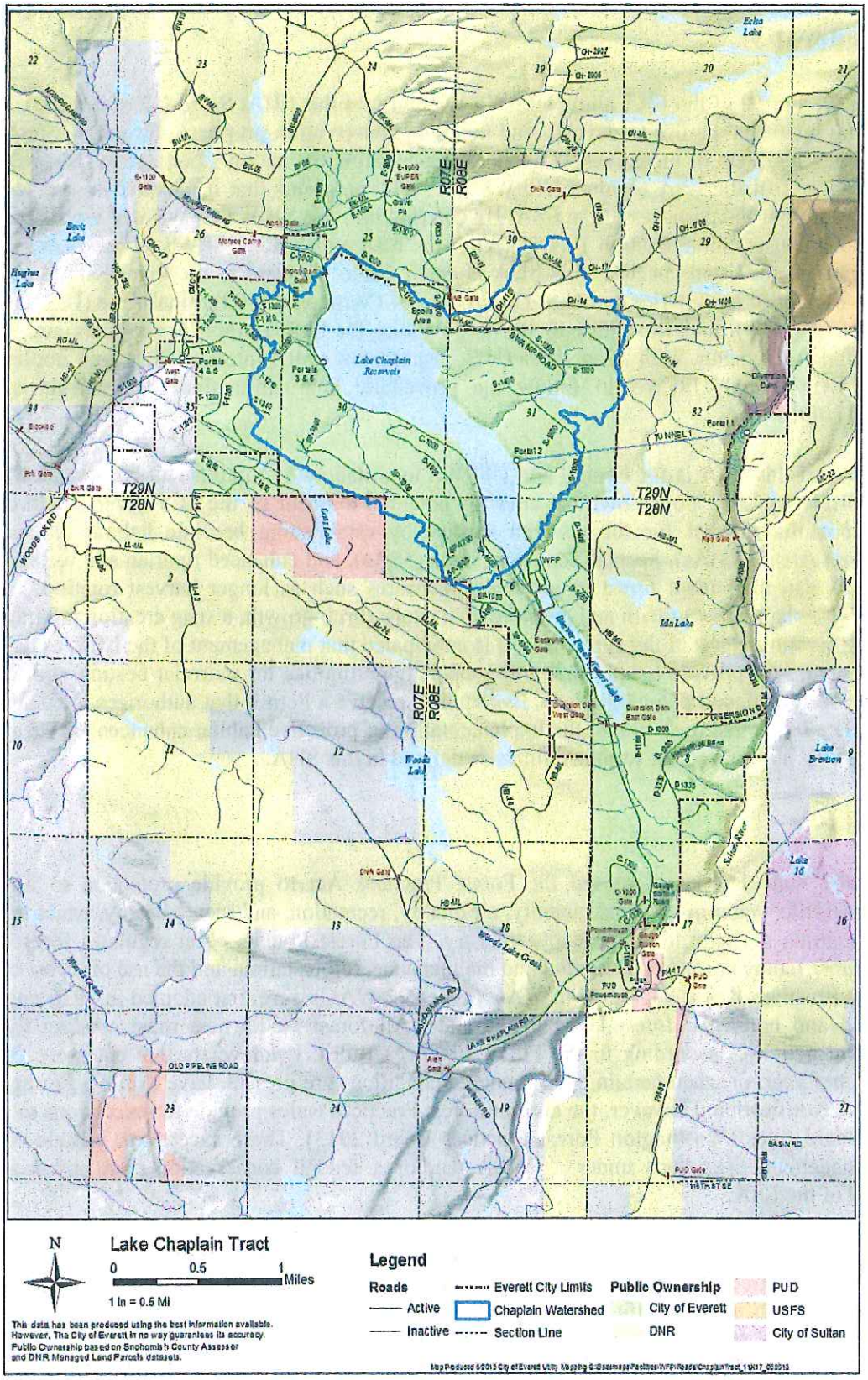
This document integrates Everett's SHA, as part of the application package for the Permit under Section 10 of the ESA, and WDNR's CHEA for murrelets and spotted owls. The SHA submitted in support of an enhancement of survival permit will include information about the following:

- conservation goals and objectives;
- species and/or habitats covered, including the habitat conditions and the enrolled property;
- agreed-upon baseline conditions for each of the covered species addressed in the SHA;
- voluntary management actions that would be undertaken to accomplish the expected net conservation benefits to the species, how the benefits would lead directly or indirectly to recovery, where and when the benefits would be achieved, and the agreed-upon time frames in which these management actions will remain in effect to achieve the anticipated net conservation benefits;
- any incidental take associated with the management actions during the term of the SHA;
- a notification requirement to provide USFWS or appropriate state agencies with a reasonable opportunity to rescue individuals of a covered species before any authorized incidental taking occurs, if appropriate;
- return to baseline conditions and the extent of incidental take that would likely result from such activities;
- landowner assurances;
- reporting requirements;
- the process for land additions, amendments, dispute resolution, and permit termination, transfer, and renewal;
- consistency of the SHA with applicable federal, state, and county laws and regulations;
- monitoring schedule and the responsible parties who will monitor maintenance of baseline conditions, implementation of terms and conditions of the SHA, and any incidental take as authorized in the Permit; and
- other requirements of Section 10 of the ESA.

This agreement also represents a WDNR CHEA, and will contain the following elements, if different from the SHA, as described below.

- an estimate of the baseline amount of habitat;
- a determination of the ability of Everett to maintain habitat conditions across the project landscape over time;
- a determination of the overall benefits of the proposed measures to create, enhance, or maintain habitat and the proposed baseline; and
- the term of the agreement.

Figure 1-1: Project Vicinity Map



2 Authority and Purpose

2.1 Federal

Sections 2, 7, and 10 of the ESA allow USFWS to enter into this SHA. Section 2 of the ESA states that encouraging interested parties to develop and maintain conservation programs, through federal financial assistance and a system of incentives, is a key to safeguarding the nation's heritage in fish, wildlife, and plants. Section 7 of the ESA requires USFWS to review programs that it administers and to use such programs to further the purposes of the ESA. By entering into this SHA, USFWS will use its programs to promote such conservation. Section 10(a)(1)(A) of the ESA authorizes USFWS to issue enhancement of survival permits for listed species. This SHA is entered into pursuant to the Final Safe Harbor Policy (U.S. Department of the Interior and U.S. Department of Commerce 1999), Final Rule (U.S. Department of the Interior 1999), and Revisions to the Regulations for Safe Harbor Agreements and Candidate Conservation Agreements With Assurances (U.S. Department of the Interior 2004), and implements the intent of Everett and USFWS to follow the procedural and substantive requirements of Section 10(a)(1)(A) of the ESA.

The purpose of this SHA is for Everett and USFWS to collaborate to implement conservation measures for the murrelet and the spotted owl that have the potential to occur on the LCT. Everett will create and maintain potential habitat for the covered species by establishing baseline habitat blocks, Special Management Areas (SMAs), Special Set-aside Areas (SSAs), and enhanced riparian and wetland buffers. Everett will also implement forest management measures such as longer harvest rotations, additional thinning to accelerate tree growth and promote understory shrub growth, a snag creation program, and by monitoring certain aspects of the agreement. It is anticipated that management of the LCT, as described in this agreement, will provide habitat that will support opportunities for murrelet nesting and for spotted owls to roost, forage, and potentially nest. Everett will receive a Permit that authorizes incidental take of any murrelets or spotted owls due to the implementation of proactive habitat enhancement measures that increase habitat above baseline responsibilities as defined in this SHA.

2.2 State

In 1974, the State legislature passed the Forest Practices Act to provide protection to forest soils, fisheries, wildlife, water quality and quantity, air quality, recreation, and scenic beauty, while at the same time maintaining a viable forest products industry. The Forest Practices Act regulates forest practices such as timber removal, road construction and maintenance, reforestation, and the use of forest chemicals. The Forest Practices Rules, embodied in WAC (Title 222 WAC) were first adopted in 1976 and apply to non-federal and non-tribal forest lands in the state. All forest landowners must conduct their forest management activities according to the Forest Practices Rules. Landowners that cut more than 5,000 board feet per year, or when certain environmental conditions are present, have to file a Forest Practices Application/Notification. However, the current Forest Practices Rules provide for exceptions to operating under standard rules (Washington Forest Practices Board 2013). These exceptions include conducting forest management operations under a CHEA, and/or a federal conservation plan authorized under Section 10 of the ESA.

Everett's CHEA for murrelets and spotted owls is authorized under Forest Practices Rules (WAC 222-16-105). This plan/agreement is subject to approval by WDNR, in consultation with the Washington Department of Fish and Wildlife (WDFW). The purpose of the CHEA is to protect landowners who create, enhance, or maintain habitat for murrelets and/or spotted owls against future Forest Practices Rules restrictions related to murrelets or spotted owls invoked as a result of these enhancement activities. A CHEA is an agreement between WDNR and a landowner, developed in cooperation with WDFW, for

the purpose of creating, enhancing, or maintaining murrelet and/or spotted owl habitat. The CHEA applies to forest land identified as potential future habitat for murrelets and spotted owls. The CHEA includes enhanced forest management activities which will result in greater habitat value to murrelets or spotted owls than would occur under standard Forest Practices Rules. WDNR, after consultation with WDFW, will determine if the measures Everett agreed to will meet the goals of an acceptable CHEA.

3 Background

This section describes the lands and species covered under the agreement and the species and habitat baseline conditions of Everett's Lake Chaplain Tract.

3.1 Description of Covered Area

3.1.1 General

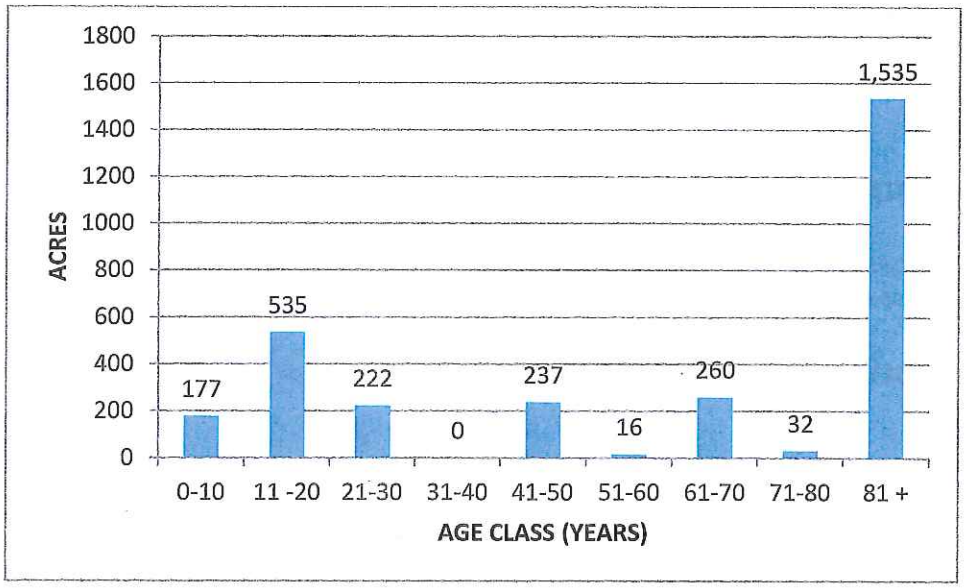
Everett's LCT encompasses approximately 3,729 acres in Snohomish County (Figure 1-1) and has been used for timber and drinking water production since the beginning of the twentieth century. Non-forest areas total approximately 715 acres and include Lake Chaplain, portions of the Sultan River, non-forested wetlands, water filtration facilities, and rights-of-way. The LCT is situated approximately three miles north of Sultan, Washington and is surrounded and/or intermixed with state and federal forest lands, along with other public and private forest lands. Except for the federal lands, the surrounding forest lands are generally managed for commercial timber production.

The LCT is located at the western edge of the Cascade Mountain Range. The terrain is mostly gentle to moderately steep with slopes up to 40 percent; steeper slopes, up to 100 percent and greater, exist along the Sultan River and around portions of Lake Chaplain and Chaplain Creek. The LCT drains into the east fork of Woods Creek and the Sultan River. Upland soils are predominately from either the Tokul or Elwell series (Washington Department of Natural Resources 1980). The principal upland plant associations of the LCT are western hemlock/swordfern–threeleaf foamflower and western hemlock/swordfern–Cascade barberry (Hall 1992). Annual precipitation has ranged from 70 to 90 inches over the last decade, as measured at the Lake Chaplain weather station, and elevation ranges from 300 feet to 1,200 feet.

The LCT is characterized by forest stands composed primarily of Douglas-fir and western hemlock, with an admixture of western red cedar, red alder, and other conifers and hardwoods. The age structure is diverse but skewed toward older age classes. The current number of acres in each stand age class is presented in Figure 3-1 (715 acres of non-forest excluded) and depicted in Figure 3-2.

Everett conducts its forest management operations according to Forest Practices Rules. In addition, approximately two-thirds of the LCT forest lands have been managed according to the provisions of a wildlife habitat management plan since 1988. The original wildlife habitat management plan was written to mitigate the impacts to wildlife from the construction and operation of the Henry M. Jackson Hydroelectric Project (Public Utility District No. 1 of Snohomish County et al. 1988). Though Everett is no longer a co-licensee of the hydroelectric project, wildlife habitat management has continued by agreement with WDFW and Public Utility District No. 1 of Snohomish County (PUD) and is now conducted according to the provisions of the Lake Chaplain Tract Wildlife Habitat Management Plan (City of Everett 2012). The adaptive management provisions of that agreement and plan remain in effect but, henceforth, all LCT forest lands will be managed solely according to Forest Practices Rules, except as modified by the provisions of this SHA/CHEA.

Figure 3-1: Current Acreage in Each Stand Age Class



3.1.2 Adjacent Landowners

Timber lands managed by WDNR border approximately 79 percent of the perimeter of the LCT. WDNR manages the majority of their lands under the 1997 Habitat Conservation Plan for state trust lands. The HCP specifies strategic locations throughout the state where spotted owl and murrelet conservation is emphasized. However, the WDNR lands surrounding the LCT do not have a specific focus for either spotted owl or murrelet conservation (Washington Department of Natural Resources 1997). Instead, these surrounding lands are managed for general forest sustainability.

Timber lands owned by Public Utility District No. 1 of Snohomish County and by private owners border approximately 10 percent of the perimeter. Federal timber lands managed as part of the Mt. Baker-Snoqualmie National Forest constitute the remainder of the adjacent landowners (Figure 3-3).

3.2 Covered Activities

The covered activities are typical forest management activities. These include all aspects of forest management under the Washington Forest Practices Act, including but not limited to timber harvest, pre-commercial thinning, log transportation, road construction, road maintenance and abandonment, small rock pits, site preparation and slash abatement, tree planting, fertilization, commercial thinning, experimental silviculture, snag creation, and wildfire suppression. Additionally covered is incidental tree removal necessary to reconstruct, repair, and/or maintain the Diversion Dam and its associated tunnels, portals, pipelines, and access roads.

3.3 Covered Species

The listed species that have the greatest potential to occur in the covered lands are the murrelet and the spotted owl, both federally-listed as threatened. Both species are also included on the WDFW species of concern list with the spotted owl listed as endangered and the murrelet listed as threatened.

These two species are considered the "covered species" in the SHA as defined in USFWS Safe Harbor Policy (U.S. Department of the Interior 1999). Under the WDNR CHEA, murrelets and spotted owls will be addressed to meet CHEA goals (WAC 222-16-105). Thus, the conservation measures proposed to meet the ESA SHA requirements are also designed to meet the requirements of a CHEA. The content of this one agreement will fulfill the criteria for both types of conservation plans or agreements.

3.3.1 Marbled Murrelet Status and Ecology

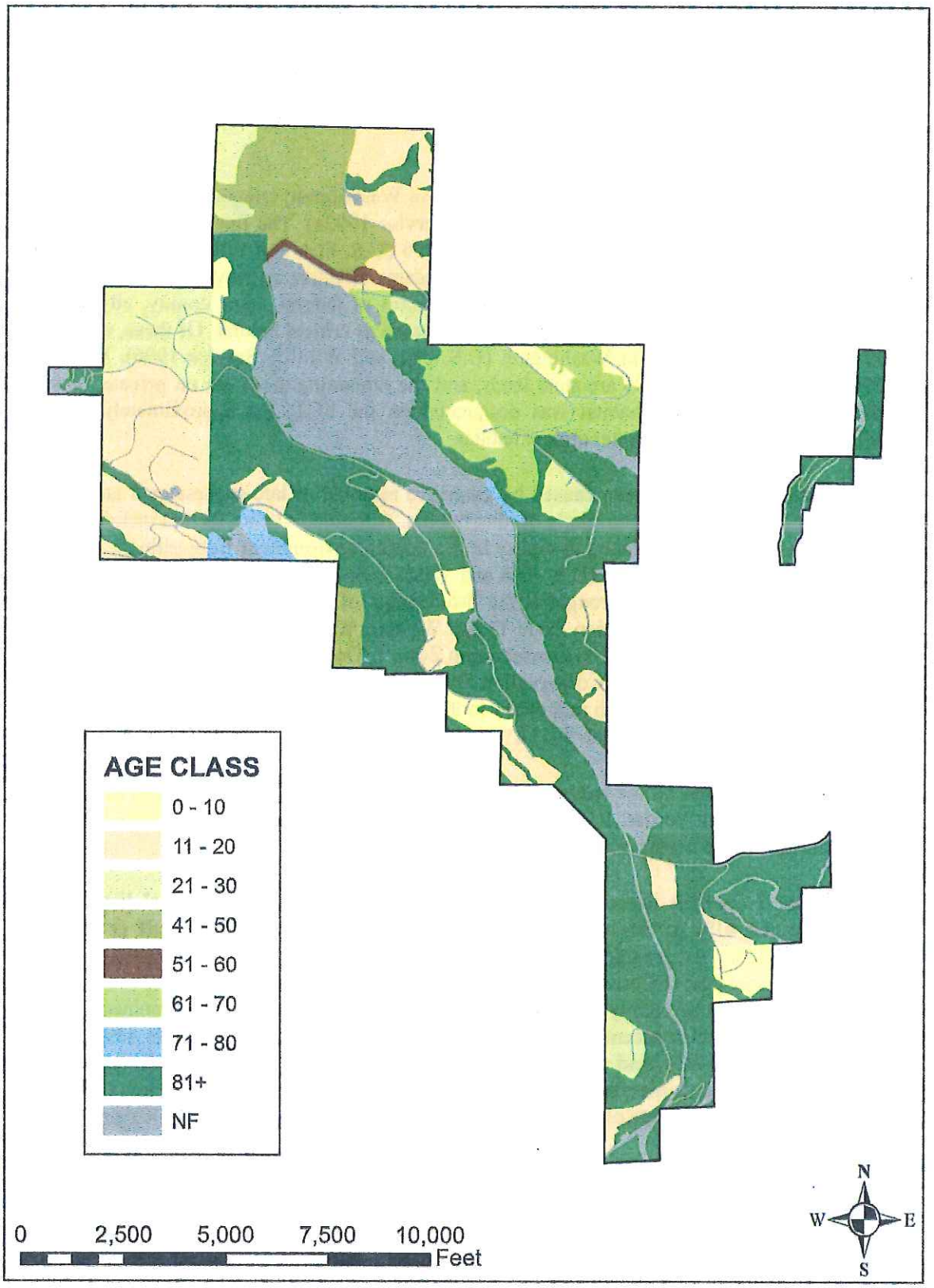
The murrelet was federally listed as a threatened species in Washington, Oregon, and northern California effective September 28, 1992 (U.S. Fish and Wildlife Service 1992a). The final rule designating critical habitat for the murrelet became effective on June 24, 1996 (U.S. Fish and Wildlife Service 1996). This designation was later revised and the final revised rule became effective on November 4, 2011 (U.S. Fish and Wildlife Service 2011b). Approximately 3,698,100 acres of federal, state, county, city, and private lands in Washington, Oregon, and California were designated as critical habitat. Of these, approximately 1,631,100 acres were designated in Washington (U.S. Fish and Wildlife Service 1996). Most of these acres (78%) are federal lands, 21% are state lands, and the remaining areas are on private, county, and city lands. No murrelet critical habitat was designated on the LCT, but approximately 80% of the perimeter border is designated murrelet critical habitat.

The species' decline has largely been caused by extensive removal of late-successional and old-growth coastal forests which serve as the murrelet's nesting habitat. Additional listing factors included high nest-site predation rates and human-induced mortality in the marine environment from gillnets and oil spills. The Marbled Murrelet Recovery Plan (U.S. Fish and Wildlife Service 1997a) (Murrelet Recovery Plan) identified six Conservation Zones throughout the listed range of the species including two in western Washington: Puget Sound (Conservation Zone 1) and Western Washington Coast Range (Conservation Zone 2). The LCT is entirely included in Conservation Zone 1. Documented downward trends have been observed in Conservation Zone 1 and Conservation Zone 2, but not in other conservation zones (Miller et al. 2012). These declines coincide with reductions in the amount of nesting habitat since the beginning of at-sea monitoring in 2001 (Raphael et al. 2011).

Conservation Zone 1 includes all the waters of Puget Sound and most waters of the Strait of Juan de Fuca south of the U.S.-Canadian border. It extends inland 55 miles from Puget Sound, including the north Cascade Mountains and the northern and eastern sections of the Olympic Peninsula.

Conservation Zone 1 contains one of the larger murrelet populations in the species' listed range and supports an estimated 41% of the murrelets in the coterminous United States (Huff et al. 2003). In Conservation Zone 1, higher densities of murrelets occur in the Straits of Juan de Fuca, the San Juan Islands, and Hood Canal than in Conservation Zone 2, the Washington outer coast (Huff et al. 2003, Falxa et al. 2013). Zone 1 is in proximity to nesting habitat on the northern Olympic Peninsula and North Cascade Mountains. The most recent population estimate for Conservation Zone 1 is 4395 birds (95% Confidence Limits 2275-6740), and the population in Zone 1 was calculated as declining at a -3.88% annual rate ($P = 0.05$). The Conservation Zone 2 population recent estimate is 1257 birds (95% CL 920-1846) with a significant annual rate of decline of -7.37% ($P = 0.01$; Falxa et al. 2013).

Figure 3-2: Current Age Class Map



Murrelets are dependent upon forests with an older tree component, for nesting habitat (Hamer and Nelson 1995; Ralph et al. 1995; McShane et al. 2004). Sites occupied by murrelets tend to have a higher proportion of mature and old forest age classes than do unoccupied sites (Raphael et al. 1995). In Washington, murrelet nests have been found in conifers; specifically, western hemlock, Sitka spruce, Douglas-fir, and western red cedar (Hamer and Nelson 1995). Hamer and Meekins (1999) found some nests on industrial forest in Washington in trees as small as 31 inches diameter at breast height (DBH) on limbs at least 65 feet from the ground, and 4 inches in diameter.

Murrelet populations may be limited by the availability of suitable nesting habitat. It is believed that murrelets may currently be occupying nesting habitat at or near carrying capacity in highly fragmented areas and/or in areas where a significant portion of the historic nesting habitat has been removed (Ralph et al. 1995). Therefore, unoccupied stands containing nesting structures could be important to displaced breeders and first-time breeding adults. On the Olympic Peninsula, Raphael et al. (2002b) found that the maximal numbers of murrelet targets detected by radar was positively correlated with the amount of late-seral forest in a watershed in each of three years sampled.

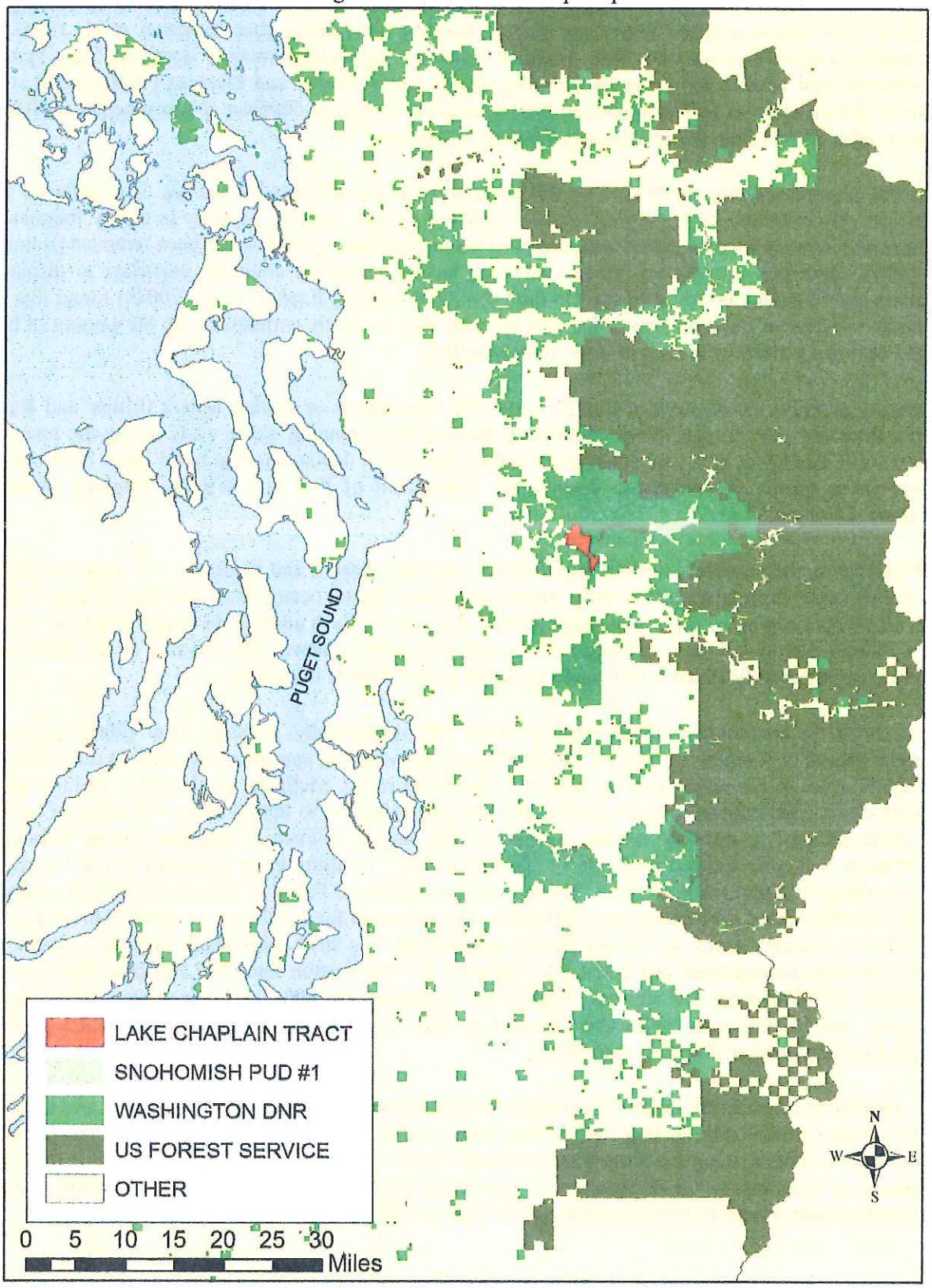
Murrelets generally select nests within 37 miles (60 kilometers) of marine waters (Miller and Ralph 1995). Breeding pairs forage within commuting distance when tending active nests during the breeding season. In Washington, occupied behavior detections have been documented up to 53 miles from marine waters (pers. comm., J. Jenkerson, Washington Department of Fish and Wildlife Marbled Murrelet Database, Olympia, WA).

In Washington, the murrelet breeding season occurs between April 1 and September 15. Egg laying and incubation occur from late April to early August and chick rearing occurs from late May to late August with all chicks fledging by early September (Hamer et al. 2003). Each adult of the pair typically incubates for a 24-hour period and then exchanges duties with their mate at dawn. The duration of the incubation period is approximately 30 days, and chicks typically fledge 30 days thereafter.

Estimates on the amount of available nesting habitat vary substantially. McShane et al. (2004) estimates murrelet habitat in Washington State at 1,022,695 acres, representing approximately 48% of the estimated 2,223,048 acres of remaining suitable habitat in the listed range. McShane et al. (2004) caution about making direct comparisons between current and past estimates due to the evolving definition of habitat and methods used to quantify habitat. As part of the ongoing pursuit to improve habitat estimates, information was collected and analyzed by USFWS in 2005, resulting in an estimated 751,831 acres of nesting habitat in Conservation Zone 1. The most recent Northwest Forest Plan terrestrial habitat estimate using remotely sensed data from years 2006-2007 was calculated for a different geographic division than the USFWS recovery zones, so it is not directly comparable. The 2011 coarse-scale analysis estimate for federal and non-federal lands was 2,304,300 total acres for Washington state: 747,200 acres for Olympic peninsula; 459,600 acres for western Washington lowlands; 984,600 acres for western Washington Cascades, and 169,600 acres for eastern Cascades for class 3 (moderately high suitability) and 4 (highest quality) modeled habitat (Raphael et al. 2011).

The majority of murrelet habitat in Conservation Zone 1 occurs in northwestern Washington and is found on U.S. Forest Service and National Park Service lands, and to a lesser extent on State lands. The majority of the historic habitat along the eastern and southern shores of Puget Sound has been replaced by urban development resulting in the distribution of remaining habitat being farther inland from the marine environment than what occurred historically (U.S. Fish and Wildlife Service 1997a).

Figure 3-3: Land Ownership Map



Murrelets remain subject to a variety of anthropogenic threats in the upland and marine environment. They also face threats from low population numbers, low immigration rates, high predation rates, and disease. Threats to murrelets in the terrestrial environment include extensive harvest of late-successional and old-growth forest, the primary reason for listing the murrelet as threatened. At least 82% of the old-growth forests existing in western Washington and Oregon prior to the 1840s have been harvested (Booth 1991; Teensma et al. 1991; Ripple 1994; Perry 1995). Subsequent fragmentation of nesting habitat results in increased forest edge, which increases risk from predation by corvid species (ravens, crows and jays) (Raphael et al. 2002a, Marzluff et al. 2004, Marzluff and Neatherlin 2006, U.S. Fish and Wildlife Service 2012b).

The loss of nesting habitat has generally been identified as the primary cause of the murrelet population decline and disappearance across portions of its range (Ralph et al. 1995, U.S. Fish and Wildlife Service. 2012b). The recovery strategy for the murrelet relies heavily on the Northwest Forest Plan (U.S. Forest Service and U.S. Bureau of Land Management 1994) to achieve recovery on federal lands in Washington, Oregon, and California (U.S. Fish and Wildlife Service 1997a). However, the Murrelet Recovery Plan also addresses the role of non-federal lands in recovery, including HCPs, State Forest Practices Rules, and tribal lands. The importance of non-federal lands in the survival and recovery of murrelets is particularly high in Conservation Zones where federal lands and privately held conservation lands within 50 miles of marine waters are sparse, such as the southern half of Conservation Zone 2. Lands considered essential for the recovery of the murrelet within Conservation Zones 1 and 2 include (1) any suitable habitat in a Late-Successional Reserve identified in the Northwest Forest Plan; (2) all suitable habitat located in the Olympic Adaptive Management Area identified in the Northwest Forest Plan; (3) large areas of suitable nesting habitat outside of Late Successional Reserves on federal lands such as habitat located in the Olympic National Park; (4) suitable habitat on State lands within 40 miles of marine waters; and (5) habitat within occupied murrelet sites on private lands (U.S. Fish and Wildlife Service 1997a).

Nesting habitat loss and fragmentation are expected to continue in the near future but at an uncertain rate (McShane et al. 2004, Raphael et al. 2011, Falxa et al. 2013). In addition to direct habitat removal, forest management practices can fragment murrelet habitat. Fragmentation reduces the amount and heterogeneous nature of the habitat, forest patch sizes, and the amount of interior or core habitat, increases the amount of forest edge, isolates remaining habitat patches, and creates "sink" habitats (McShane et al. 2004). The ecological consequences of these habitat changes to murrelets can include effects on population viability and size, local or regional extinctions, displacement, fewer nesting attempts, failure to breed, reduced fecundity, reduced nest abundance, lower nest success, increased predation and parasitism rates, crowding in remaining patches, and reductions in adult survival (Raphael et al. 2002a, 2002b).

The Murrelet Recovery Plan outlines the conservation strategy for the species. In the short-term, specific actions necessary to stabilize the population include maintaining occupied habitat, maintaining large blocks of suitable habitat, maintaining and enhancing buffer habitat, decreasing risks of nesting habitat loss due to fire and windthrow, reducing predation, and minimizing disturbance. Long-term conservation needs include (1) increasing productivity and population size; (2) increasing the amount (stand size and number of stands), quality, and distribution of suitable nesting habitat; (3) protecting and improving the quality of the marine environment; and (4) reducing or eliminating threats to survivorship by reducing predation in the terrestrial environment and anthropogenic sources of mortality at sea. USFWS estimates recovery of the murrelet will require at least 50 years (U.S. Fish and Wildlife Service 1997a).

In addition to the short- and long-term benefits provided by the Northwest Forest Plan, four HCPs addressing murrelets in Washington have been completed for private/corporate forestland managers. HCPs have also been completed for WDNR (Washington Department of Natural Resources 1997; U.S.

Fish and Wildlife Service 1997b) and two municipal watersheds: City of Tacoma (Tacoma Public Utilities 2001, U.S. Fish and Wildlife Service 2001) and City of Seattle (City of Seattle 2001; U.S. Fish and Wildlife Service 2000). Most of the murrelet HCPs in Washington employ a consistent approach for murrelets by requiring the majority of habitat to be surveyed prior to timber management. Only poor-quality marginal habitat with a low likelihood of occupancy is released for harvest without survey. All known occupied habitat is protected to varying degrees, but a "safe-harbor-like" approach is used to address stands that may be retained as, or develop into, suitable habitat and become occupied in the future. This approach allows for future harvest of habitat that is not currently identified as nesting habitat.

Under Forest Practices Rules, which apply to all non-federal lands not covered by an HCP (Washington Forest Practices Board 1996), surveys for murrelets are required prior to any management (including harvest) of stands that meets certain platform numbers and stand size criteria. These criteria vary depending on the location of the stand. For occupied murrelet habitat, WDNR makes a decision to approve or disapprove individual Forest Practices Applications based on a significance determination. If a determination of significance is made, preparation of a SEPA Environmental Impact Statement (EIS) is required prior to proceeding. If a determination of non-significance or mitigated determination of non-significance is reached, the action can proceed without further environmental assessment.

3.3.2 Northern Spotted Owl Status and Ecology

The spotted owl was federally listed as threatened on June 26, 1990, under the ESA. Detailed accounts of the taxonomy, ecology, and reproductive characteristics of the spotted owl are found in numerous federal documents but most recently in the Scientific Evaluation of the Status of the Northern Spotted Owl (Courtney et al. 2004). On January 15, 1992, USFWS designated critical habitat for the spotted owl (U.S. Fish and Wildlife Service 1992b). This designation was later revised and the final revised rule became effective on January 3, 2013 (U.S. Fish and Wildlife Service 2012a). Four units of critical habitat, comprised of 26 subunits and totaling approximately 2,918,067 acres, were designated on state and federal lands in Washington; no critical spotted owl habitat was designated on the LCT forest lands. The nearest such designated critical spotted owl habitat is located approximately 7.9 miles northeast of the LCT.

On May 16, 2008, the U.S. Fish and Wildlife Service announced the release of the Final Recovery Plan for the Northern Spotted Owl (U.S. Fish and Wildlife 2008). Of note are five main elements of the Final Recovery Plan, one of which was to create incentives to non-federal landowners to contribute to spotted owl recovery through land management. On July 1, 2011, a Revised Recovery Plan for the Northern Spotted Owl became effective wherein USFWS reiterated the important role that state and private lands can play toward implementing a coordinated and cooperative effort to recover the spotted owl (U.S. Fish and Wildlife Service 2011a). USFWS stated they will continue to work with these landowners to use a variety of voluntary incentives and approaches that will help contribute to spotted owl recovery through protection and development of unoccupied, high-quality habitat. Lands covered under Section 10 of the ESA provide for the conservation of key habitat areas and occupied sites. The net conservation benefits of SHA/CHEAs are often direct contributions to recovery, even if of a limited temporal nature. Specifically, Recovery Action 14 encourages applicants to develop Habitat Conservation Plans and Safe Harbor Agreements that are consistent with the recovery objectives.

The current range of the spotted owl is similar to its historical range where forested habitat still exists, including western Washington (Gutierrez et al. 1995). The distribution of habitat is influenced by the natural and human-caused fragmentation of vegetation and natural topography (Thomas and Raphael 1993).

Spotted owls generally rely on older forested habitats because they contain the structures and characteristics required for nesting, roosting, foraging, and dispersal. These characteristics include the following: (1) a multi-layered, multi-species canopy dominated by large overstory trees; (2) moderate to high canopy closure; (3) a high incidence of trees with large cavities and other types of deformities; (4) numerous large snags; (5) an abundance of large, dead wood on the ground; and (6) open space within and below the upper canopy for flight (Thomas et al. 1990; U.S. Fish and Wildlife Service 1990b).

Spotted owl home range size is variable, generally increasing from south to north, which is likely in response to decreasing habitat quality (U.S. Fish and Wildlife Service 1990b). Home range size has been linked to habitat type, availability, and abundance of prey (Zabel et al. 1995). Because the actual configuration of the home range is rarely known, the estimated median annual home range of a spotted owl pair, based on radio telemetry data from Washington, is represented by a circle centered upon a spotted owl activity center. Home range size for spotted owl activity centers in the Washington Cascade Mountains is based on a 1.8-mile radius circle. USFWS uses a 0.7-mile radius circle (984 acres) to delineate the core area most heavily used by spotted owls during the nesting season.

In Washington, spotted owl foraging occurs in nesting and roosting habitat, as well as in coniferous forest with smaller trees and less structural diversity, if prey such as the northern flying squirrel are present (Hanson et al. 1993). In the western Washington Cascade Mountains, spotted owls used mature/old forests dominated by trees greater than 20 inches DBH with greater than 60% canopy closure for roosting during the non-breeding season more often than expected and used young forests with trees 8 to 20 inches DBH with greater than 60% canopy closure less often than expected based on availability (Herter et al. 2002).

Spotted owls exhibit high adult annual survival rates and are relatively long-lived (Anthony et al. 2006). Nest sites are usually located within stands of old-growth and late-successional forest dominated by Douglas-fir, containing structures such as cavities, broken tree tops, or mistletoe brooms (Forsman and Geise 1997, Gutierrez et al. 1995, Courtney et al. 2004). Spotted owls do not build their own nests. Most nesting occurs within naturally formed cavities in live trees or snags. They may also occupy a platform nest built by Accipiter hawks. In general, courtship and nesting behavior begin in February to March with nesting occurring from March to June. After young fledge from the nest, they depend on their parents until they are able to fly and hunt on their own.

Natal dispersal of spotted owls from Oregon and Washington typically begins from mid- to late-September and it is remarkably synchronous across broad areas (Forsman et al. 2002). Dispersal direction from individual territories may be non-random in response to the local distribution of habitat and topography (Forsman et al. 2002). Natal dispersal occurs in stages with juveniles settling in temporary home ranges between bouts of movement (Forsman et al. 2002). Successful dispersal of juvenile spotted owls depends on their ability to locate unoccupied suitable habitat (LaHaye et al. 2001). Breeding dispersal occurs among a small proportion of adult spotted owls; these movements are more frequent among females and unmated individuals (Forsman et al. 2002). Breeding dispersal distances are shorter than natal dispersal distances and also apparently random in direction (Forsman et al. 2002). Large non-forested valleys are apparent barriers to natal and breeding dispersal. Forested foothills between valleys may provide the only opportunities for dispersal (Forsman et al. 2002). Dispersing juvenile spotted owls experience high mortality rates, exceeding 70% in some studies (U.S. Fish and Wildlife Service 1990a; Miller 1989). Leading known causes of mortality are starvation, predation, and accidents (Miller 1989; U.S. Fish and Wildlife Service 1990a; Forsman et al. 2002).

Composition of prey in the spotted owl's diet varies regionally, seasonally, annually, and locally, likely in response to prey availability (Carey 1993; Forsman et al. 2001; Forsman et al. 2004). Spotted owls are

mostly nocturnal (Forsman et al. 1984) but they may forage opportunistically during the day (Laymon 1991; Sovern et al. 1994). Northern flying squirrels are usually the predominant prey (Forsman et al. 2004) with a clear geographic pattern of prey availability paralleling differences in habitat (Thomas et al. 1990).

Non-federal lands were determined to be an important contribution to achieving the range-wide goal of the conservation and recovery of the spotted owl (Thomas and Raphael 1993). USFWS's main expectations for private lands are for their contributions to demographic support (pair or cluster protection) and/or habitat connectivity. Much of the current conservation for spotted owls on private lands is provided by habitat conservation plans developed under Section 10 of the ESA or through Forest Practices Rules. There are eight current or completed HCPs with incidental take permits issued for spotted owls in Washington. While each HCP is unique, there are several general approaches to mitigation of incidental take of spotted owls, including (1) reserves of various sizes, some associated with adjacent federal reserves; (2) forest harvest that maintains or develops suitable habitat; (3) forest management that maintains or develops dispersal habitat; and (4) deferral of harvest near specific sites.

In 1996, the Washington Forest Practices Board adopted rules (Washington Forest Practices Board 1996) that would "contribute to conserving the spotted owl and its habitat on non-federal lands" based on recommendations from a Science Advisory Group, which identified important non-federal lands and recommended roles for those lands in spotted owl conservation (Hanson et al. 1993; Buchanan et al. 1994).

Forest Practices Rules designate 10 spotted owl special emphasis areas (SOSEAs) in Washington, comprising over 1.5 million acres of state and private lands where spotted owl habitat protection on non-federal lands would be emphasized. The LCT is situated between two such SOSEAs; the Finney Block SOSEA is approximately nineteen miles north of the LCT and the I-90 West SOSEA is approximately thirty-four miles south of the LCT.

Outside of SOSEAs, any proposed harvest, during the nesting season, of the seventy acres of highest quality suitable spotted owl habitat surrounding a spotted owl site center is considered a Class-IV Special which triggers SEPA review (WAC 222-16-050). Any such proposed harvest would likely be considered to have a probable significant adverse effect on the environment with respect to SEPA. If a determination of significance is made, preparation of a SEPA EIS is required prior to proceeding. If a determination of non-significance or mitigated determination of non-significance is reached the action can proceed without further environmental assessment.

3.4 Current Conditions

The LCT is a mosaic of coniferous forest stands with a few stands dominated by hardwood species. An estimated 55% of the covered lands are considered operable, i.e., available for forest management operations. This amount excludes non-forested areas, baseline habitat blocks, special set-aside areas, unstable land forms, along with enhanced riparian and wetland management zones. The property is well-stocked and is highly productive timberland with an acreage-weighted average site index of 130 (King 1966). The current composition of operable forest lands is estimated as 49% Douglas-fir, 41% western hemlock, 7% western red cedar, and approximately 3% as big leaf maple and other hardwoods. Nearly all of the forest stands have been harvested at least once; approximately 40% of operable forest lands have been harvested twice. The current age structure is diverse but approximately half of the forest stands are older than 80 years (Figures 3-1 and 3-2). This age class distribution is based on ongoing forest inventory data collection by Everett and projections made with the West Cascades Variant of the Forest Vegetation Simulator (U.S. Forest Service 2008).

3.4.1 Marbled Murrelet

For the purpose of habitat determination under Forest Practices rules, forest stands that have all of the following forest stand characteristics may have sufficient potential nesting platforms to require murrelet surveys:

- within 50 miles of marine waters;
- contiguous forested area containing trees capable of providing nesting opportunities;
- at least 40% of the dominant and co-dominant trees are Douglas-fir, western hemlock, western red cedar, or Sitka spruce;
- at least 7 acres in size;
- large (32-inch or greater DBH) conifer trees present;
- generally multi-storied (2-3 layers); and
- moderate canopy closure.

Murrelets were observed landing on Lake Chaplain over a three year period, beginning in 1993, and a few murrelet flights over the forest on the northwest lakeshore were observed (Washington Department of Fish and Wildlife 1993-1995). Those observations were recorded as Status 4 detections meaning that murrelets were either seen or heard but behavior indicating nesting occupancy was not documented. No further observations of murrelets on Lake Chaplain have been recorded since a pair of bald eagles began nesting there in 1997 (Public Utility District No. 1 of Snohomish County et al. 1998). Bald eagles are known to prey on adult murrelets, both in flight and on the water (U.S. Fish and Wildlife Service 2012b); whether eagle presence contributed to the subsequent absence of murrelets is uncertain.

Portions of suitable murrelet habitat at LCT were surveyed in accordance with protocol (Evans Mack et al. 2003) in preparation for relicensing the Jackson Hydroelectric Project (FERC Project No. 2157) (Biota Pacific 2008a). Surveys were conducted in 2007 and 2008; survey areas are depicted in Figure 3-4. Murrelets were not detected in any of these areas surveyed at the LCT.

In 2014, as part of the Jackson Hydroelectric Project, the PUD contracted for a marbled murrelet habitat assessment and audio-visual survey within one mile of Everett's Diversion Dam on the Sultan River for the purpose of implementing its marbled murrelet habitat protection plan (Figure 1-1). The majority of this survey effort was on ownership other than LCT lands. However, the results from this survey effort do indicate some marbled murrelet occupancy on LCT property in the vicinity of the Diversion Dam.

3.4.2 Northern Spotted Owl

Forest Practices Rules (WAC 222-16-085) define suitable spotted owl habitat as forest stands which meet the description of old forest habitat, sub-mature habitat, or young forest marginal habitat. Old forest habitat is the highest quality followed in descending order by sub-mature habitat and young forest marginal habitat.

A. Old forest habitat means habitat that provides for all the characteristics needed by northern spotted owls for nesting, roosting, foraging, and dispersal, described as stands with:

   (i) A canopy closure of 60% or more and a layered, multispecies canopy where 50% or more of the canopy closure is provided by large overstory trees (typically, there should be at least 75 trees greater than 20 inches DBH per acre, or at least 35 trees 30 inches DBH or larger per acre); and

(ii) Three or more snags or trees 20 inches DBH or larger and 16 feet or more in height per acre with various deformities such as large cavities, broken tops, dwarf mistletoe infections, and other indications of decadence; and
(iii) More than two fallen trees 20 inches DBH or greater per acre and other woody debris on the ground.

B. Sub-mature habitat provides all of the characteristics needed by northern spotted owls for roosting, foraging, and dispersal, described as stands with:

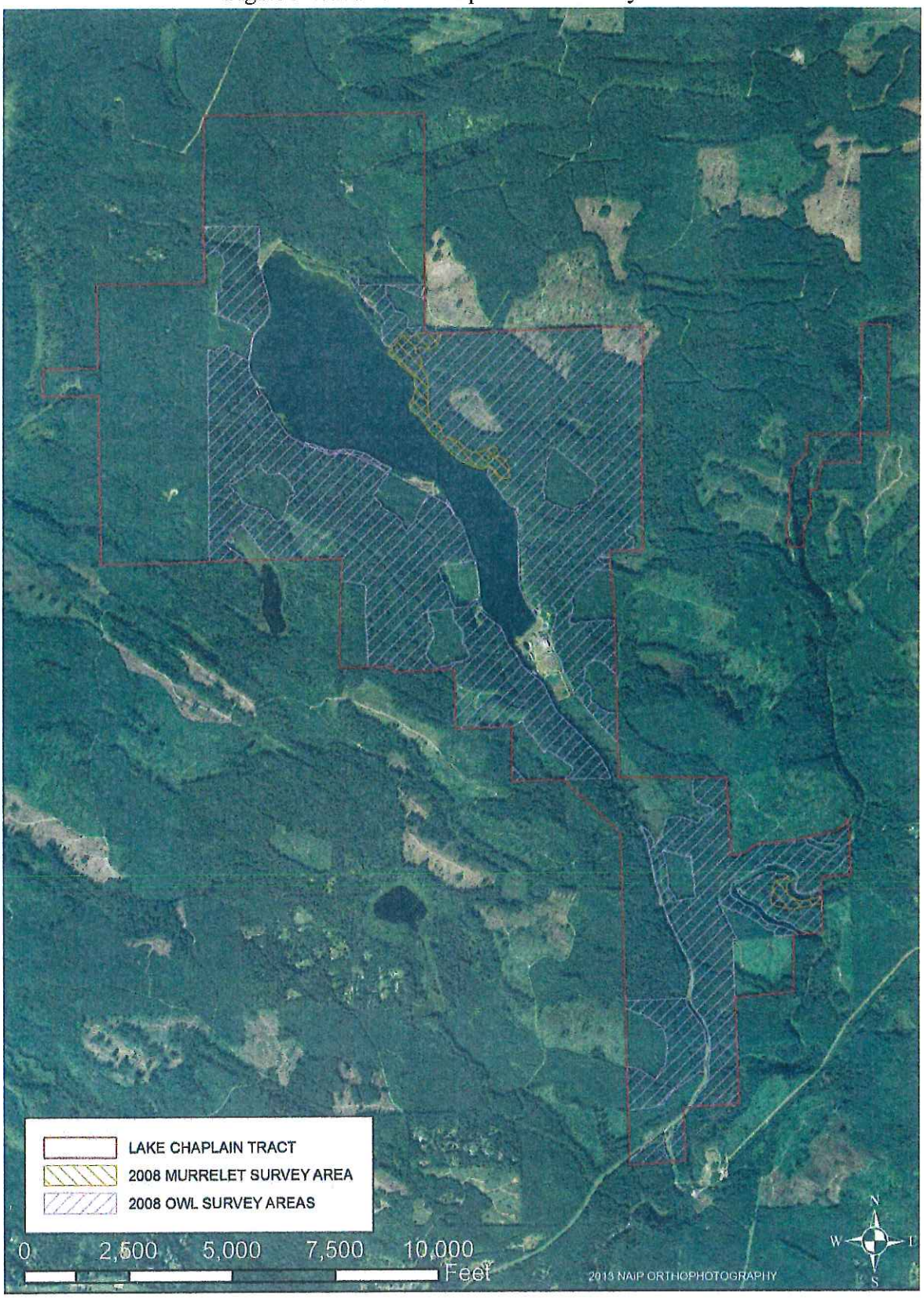
(i) A forest community that characterized by 30% or more conifer trees; and
(ii) A canopy closure of 70% or more; and
(iii) Dominant/codominant tree height greater than or equal to 85 feet with a density of 115-280 trees per acre, greater than or equal to 4 inches DBH, or two or more layers with 25%-50% intermediate trees; and
(iv) Three or more snags/cavity trees per acre, 20 inches DBH or larger and 16 feet or more in height.

C. Young forest marginal habitat provides some of the characteristics needed by northern spotted owls for roosting, foraging, and dispersal, described as stands with:

(i) A forest community that characterized by 30% or more conifer trees; and
(ii) A canopy closure of 70% or more; and
(iii) Dominant/codominant tree height greater than or equal to 85 feet with a density of 115-280 trees per acre, greater than or equal to 4 inches DBH, or two or more canopy layers with 25%-50% intermediate trees; and
(iv) Two or more snags/cavity trees per acre, 20 inches DBH or larger and 16 feet or more in height or greater than or equal to 10% of the ground covered with 4 inch diameter or larger wood, with 25%-60% shrub cover.

There is no record of spotted owls occurring on the covered lands. Potential suitable spotted owl habitat within the LCT was surveyed in accordance with USFWS protocol (U. S. Fish and Wildlife Service 1992) in preparation for relicensing the Jackson Hydroelectric Project (Biota Pacific 2008b). Complete surveys were conducted in 2007 and 2008 with no detections of northern spotted owls, but seven detections of barred owls (*Strix varia*) were made (Figure 3-4). Barred owls have the potential to negatively influence spotted owl occupancy.

Figure 3-4: Murrelet and Spotted Owl Survey Areas



4 Agreement Implementation

4.1 Conservation Measures

Everett will conduct forest management activities according to current Forest Practices Rules and the provisions described in this section. One significant conservation measure is deferral of timber harvest on approximately 1,066 acres (≈35% of forest lands). These deferred-harvest areas support a mixture of coniferous and hardwood species ranging in age from 40 to 164 years (87 years, acreage-weighted average). During the term of the agreement these stands will mature to an age of 90 to 214 years and will have the potential to provide nesting, roosting, foraging, and dispersal areas for spotted owls and nesting areas for murrelets. See Figure 4-1 for locations of the management areas described herein.

4.1.1 Baseline Conditions

The definition of baseline conditions pursuant to the Safe Harbor policy is "population estimates and distribution and/or habitat characteristics and determined area of the enrolled property that sustain seasonal or permanent use by the covered species at the time the Safe Harbor Agreement is executed". As part of an earlier planning effort, Everett conducted occupancy surveys for the covered species over specific portions of their lands (section 3.4). For this agreement, Everett will recognize 447 acres as baseline for both species.

Approximately half of the LCT forest stands are older than 80 years (Figures 3-1 and 3-2). These stands were reviewed in consultation with USFWS and WDFW biologists. Four blocks of potential suitable murrelet and/or spotted owl habitat were determined to have the highest likelihood of occupancy for both murrelets and spotted owls, now, and in the future on the covered lands (Appendix C). The block of baseline habitat by the diversion dam was designated after baseline field work occurred, as described in Appendix C.

These four blocks are designated as baseline habitat for both murrelets and spotted owls and will not be harvested during the term of the agreement except to construct a proposed road in the westernmost block or to sustain water system infrastructure in the easternmost baseline block, where minimal tree removal may be necessary to reconstruct, repair, and/or maintain the Diversion Dam and its associated tunnels, portals, pipelines, and access roads (Figure 4-1). In both cases, every reasonable effort will be made to avoid any removal of trees that have suitable platforms for marbled murrelets; Everett will consult with USFWS should the removal of platform trees be necessary. The blocks were determined to total about 477 gross acres which includes approximately 30 non-forest acres (Sultan River, along with existing and proposed road rights-of-way). Thus, the baseline blocks total approximately 447 net acres of potential suitable murrelet and/or spotted owl habitat.

4.1.2 Special Set-Aside Areas

In addition to the baseline habitat blocks, two categories of special set-aside areas (SSAs), totaling approximately 210 acres, are established on the LCT. There are approximately 20 acres of old-growth management areas (OMAs) which are retained for the benefit of late-successional wildlife. There are also approximately 190 acres of permanent mixed forests (PMFs) which are retained to provide mature mixed forest habitat. SSAs will not be harvested during the term of the agreement. The SSAs are well distributed across the LCT and will often serve as functional buffers between potential habitat and operational activities.

4.1.3 Special Management Areas

Special Management Areas (SMAs) are three inventory types on the LCT containing unique habitat features or requiring additional protection under current Forest Practices Rules. These SMAs often contain landforms or habitat features that have high conservation value compared to other inventory types. SMA locations maintained in Everett's GIS database include green tree areas (GTAs), potentially unstable slopes, and forested wetlands.

4.1.3.1 Green Tree Areas

Legacy trees provide structural diversity in managed forests. In addition to providing cover and vertical structure, legacy trees sustain biological diversity by providing habitat and refugia for many species not common to forest plantations. Legacy trees eventually become snags and downed wood, thus providing other types of habitat structures.

GTAs are intended to distribute older residual trees (live trees and snags) across the LCT to provide potential dispersal habitat for spotted owls, denning habitat for flying squirrels, and blocks of larger diameter conifer trees for potential murrelet and spotted owl nest sites. Wherever possible, GTAs will be located adjacent to other deferred-harvest areas to minimize harvest or windthrow damage and to augment the habitat value of the adjacent deferred-harvest area. GTAs will be located away from existing and anticipated roadways to minimize safety conflicts and may be located within forested wetlands where protection from windthrow damage is established.

Legacy trees will be retained in GTAs at a minimum rate of 9½ trees per acre of harvest according to the preferences listed in Table 4-1. When sufficient numbers of desired species are not available, western hemlock may be substituted for hardwoods and Douglas-fir may be substituted for western red cedar. Large diameter trees may be substituted for smaller target diameters without reservation. When inventory data indicates insufficient stocking of larger target diameters, small diameter trees may be substituted to the extent necessary.

Table 4-1: Size and Species Targets for Legacy Trees

DBH (inches)	# / Acre	Species Preference
11 – 15	0 to ½	1 western red cedar, plus 1 big leaf maple or 1 black cottonwood; any conifer species for the remainder
15 – 17	4½ to 6	
17 – 25	1 to 2	
25+	2 to 3	Douglas-fir
	Sum = 9½	

GTAs will not be harvested during the term of the agreement. Approximately 38 acres of GTAs have already been established. A total of approximately 102 acres will be established as GTAs during the term of this agreement depending on stocking levels and harvest activity.

4.1.3.2 Potentially Unstable Slopes or Landforms

Potentially unstable slopes and landforms are characterized by geologic features that make them prone to mass wasting events. Forest Practices Rules define potentially unstable slopes and landforms where certain forest practices, including timber harvest and road construction, would be considered a Class-IV Special, thus triggering SEPA review.

Potentially unstable slopes and landforms will not be harvested during the term of the agreement. Such areas have been identified through field reconnaissance and through GIS terrain modeling. There are an estimated 19 acres of potentially unstable slopes and landforms on the LCT lying outside of baseline blocks, SSAs, and enhanced riparian and wetland buffers.

4.1.3.3 Forested Wetlands

Forested wetlands are defined by Forest Practices Rules as "any wetland or portion thereof that has, or if the trees were mature would have, a crown closure of 30% or more" (WAC 222-16-035). These areas are considered to contain potentially unique habitat features. Most forested wetlands within the LCT require partial protection under Forest Practices Rules; normal management activities are allowed in forested wetlands with minor modifications (WAC 222-30-020-6). However, Everett will ensure special efforts are made to avoid soil disturbance when operating in forested wetlands. Seasonal constraints will be applied when operating on tractor-capable ground to reduce the likelihood of disturbance. Everett will also prioritize forested wetlands, where protection from windthrow damage is established, when designating GTAs. Outside of baseline blocks, SSAs, and enhanced riparian and wetland buffers, approximately 10 acres of forested wetlands have been identified to date.

4.1.4 Enhanced Riparian and Wetland Buffers

WDNR prepared an HCP covering forest practices activities on non-federal and non-tribal land in Washington to address the conservation needs of anadromous and native fish and seven stream-associated amphibians (Washington Department of Natural Resources 2005). USFWS and the National Marine Fisheries Service approved the Washington Forest Practices HCP and provided take authorizations to the State under Section 10 of the ESA. The take authorizations for aquatic species apply to qualifying landowners in receipt of an approved forest practices permit and whose forest management activities affecting aquatic resources are conducted in accord with Forest Practices Rules. The forest management activities that are covered by the take authorizations are, for the most part, conducted in the riparian areas adjacent to fish- and non-fish-bearing streams, and road construction and maintenance activities in proximity to streams. LCT forest management activities, as they relate to effects on aquatic species, were analyzed under the associated EIS and are covered under the Washington Forest Practices HCP and incidental take permit.

Forest Practices Rules (WAC 222-30) establish riparian and wetland management zones (buffers) for various stream and wetland types and specify conditions under which harvesting may occur within the buffers. The buffers under this agreement are more robust than the standard Forest Practice Rules and ultimately result in more trees within the buffer zones. These buffers will be enhanced on LCT forest lands as follows:

- Fish habitat streams (Type S and Type F): Buffer zones will be at least equal to the total width of the riparian management zones specified by Forest Practices Rules. Portions of the lake buffer lying west of the Lake Chaplain Road may be harvested with adjacent even-age harvest units to protect facility infrastructure from windthrow damage. Otherwise, buffer trees will only be harvested where stream-crossing roads or cable yarding corridors are necessary.
- Non-fish habitat streams (Type Np and Type Ns): Buffer zones will be at least 50 feet wide along the entire stream length. Buffer trees will only be harvested where stream-crossing roads or cable yarding corridors are necessary.
- Wetlands (Type A and Type B): Buffer zones around non-forested wetlands, greater than 5 acres, will be at least 200 feet. Portions of the wetland buffer lying west of the Lake Chaplain Road may be

harvested with adjacent even-age harvest units to protect facility infrastructure from windthrow damage. Otherwise, buffer trees will not be harvested during the term of the agreement.

Buffer zones are well distributed across the LCT and total approximately 310 acres outside of baseline blocks and SSAs. The portions that could potentially be harvested to protect facility infrastructure from windthrow damage total approximately 22 acres; thus, at least 288 acres will not be harvested, except for necessary stream-crossing roads or cable yarding corridors, during the term of the agreement.

4.1.5 Snags and Downed Wood Program

A hypothesized more functional type of dispersal habitat for spotted owls incorporates snags and downed wood in conifer stands to support spotted owl prey species. By deferring harvest on more than one-third of forest land during the term of the agreement, significant numbers of snags and downed wood will be retained across the LCT. Inventory data indicate that deferred-harvest areas contain approximately 10 snags per acre ≥11 inches DBH. Sizes and numbers of snags, as well as downed wood, are expected to increase over the term of the agreement in baseline blocks, SSAs, SMAs, and enhanced riparian and wetland buffers.

Snags and downed wood occurring naturally in deferred-harvest areas will be supplemented during regeneration harvest activities. Ten percent or more of trees grown under the LCT silvicultural regime are projected to equal or exceed 20 inches DBH before regeneration harvest occurs. Two such trees per acre will be transformed into snags by topping at a height of sixteen feet or more. The tops of these trees will serve as downed wood. In addition, old-growth stumps from western red cedar and Douglas-fir trees, along with logs exhibiting unique habitat value, such as large diameter logs exhibiting active wildlife usage, will be protected during harvest operations. Other decaying logs exhibiting no more than a trace of intact bark will also be retained as downed wood.

4.1.6 Forest Management

Other voluntary measures constituting a net conservation benefit to the covered species will be realized by forest management activities that extend beyond standard Forest Practices Rules and industry standards. In conjunction with deferred harvest areas, measures described herein are expected to contribute to conservation of the murrelet and spotted owl.

During all management activities, applicable Forest Practices Rules will be met or exceeded. Alternate plans allowed under Forest Practices Rules (WAC 222-12-040) may be developed and utilized provided they meet or exceed the levels of resource protection provided by the forest management activities described in this agreement. The alternate plans would be developed in consultation with USFWS and WDNR.

4.1.6.1 Forest Management Plan

An important component of Everett's forest management strategy is longer harvest rotations. This commitment is augmented by a series of management options that will improve habitat conditions and are expected to result in conservation benefits to the covered species. Where even-age management is intended (Figure 4-1), regeneration harvests will occur at age 60 years or later. Where uneven-age management is intended, regeneration harvesting will not recur within harvest groups until regenerated trees reach age 120 years. In the unlikely event that all even-age management stands were harvested as soon as possible within even-flow constraints, the acreage-weighted average rotation age for the LCT

during the term of this agreement would be approximately 78 years. This is notably different than the regional industry standard for timber harvest at an age of 45 years or younger (Washington Department of Natural Resources 2007).

Everett will employ the following silvicultural regime to ensure the proper growth and health of forest stands. This regime applies to both even-age and uneven-age management areas and includes options for mid-rotation management. The specific options for this management regime are:

- reforest and monitor until "free to grow";
- consider the most suitable mid-rotation management:
    - no mid-rotation management,
    - pre-commercial thin at 8 to 10 years old,
    - commercial thin at 30 to 40 years old, or
    - apply both pre-commercial and commercial thinning to some stands;
- conduct regeneration harvest of forest stands at age 60 years or later

Under this management regime conifer stands develop through various stages until they are harvested. In the interim, operable forest lands are expected to develop increasing amounts of large-sawtimber, coniferous forest for the benefit of late-successional wildlife species while maintaining understory shrubs for spotted owl prey species.

*4.1.6.2 **Reforestation***

Logging slash will be treated within a year of harvest to meet regulatory requirements, and minimize fire danger. Typically this will be accomplished by piling slash. Following harvest, areas of exposed mineral soil will be seeded with mixtures of non-invasive, short-lived species that allow native plants to recolonize disturbed sites over time.

Native trees, appropriate for site conditions, will be planted at a density of 250 seedlings per acre within one year of harvest in canopy openings ¼ acre and larger. Generally this will be accomplished with a mixture of Douglas-fir and western red cedar seedlings in proportions determined by the level of overstory shading and the presence of root diseases. Natural regeneration of western hemlock and hardwood trees will continue to augment tree species diversity.

The target reforestation density is notably less than the regional industry standard range of 400 to 450 trees per acre and is intended to promote understory shrub production. Regenerated trees will be monitored periodically during the first ten years following establishment. Additional tree planting may be required if less than 190 seedlings per acre have survived the first growing season; pre-commercial thinning may be necessary if stocking levels become excessive.

*4.1.6.3 **Pre-Commercial Thinning***

Pre-commercial thinning may be employed at 8 to 10 years of age wherever natural regeneration has increased stocking levels to significantly more than 250 trees per acre. Trees would generally range from 1 to 5 inches DBH. Excess trees would be slashed to reduce density to 250 trees per acre but existing hardwood trees would not be reduced to < 5% of residual stocking. Potential mortality resulting from

black bears (*Ursus americanus*) feeding on the cambium of young trees will be anticipated in decisions to reduce tree density.

The target residual stocking level is notably less than the regional industry standard range of 300 to 325 trees per acre. Reduced stocking promotes tree growth and understory shrub production. Short-term woody debris accumulates because the trees are cut by hand and not removed.

4.1.6.4 ***Commercial Thinning***

Investigations in western Washington suggest that mid-rotation thinning, in combination with cavity-tree retention and/or creation can accelerate development of late successional habitat features in younger forests (Garman et al. 2003, Beggs 2004, Lindh and Muir 2004)). Thinning and cavity-tree retention have been suggested as a primary management technique for enhancing the forest understory for northern flying squirrels (*Glaucomys sabrinus*) (Carey and Johnson 1995, Carey 2000), the primary prey species of spotted owls in western Washington (Forsman et al. 2004). Thinning of second-growth coniferous forests in western Washington has been proposed by Oliver (1992) as a critical element of an overall landscape strategy for creating and maintaining terrestrial wildlife habitats in younger managed forests. Thinning of Douglas-fir/western hemlock forests allows for competitive release of canopy dominants and shade-tolerant understory trees, eventually resulting in multiple canopy layers, increases in canopy depth, and enlargement of tree crowns (Oliver et al. 1991); these enhancements are associated with murrelet and spotted owl habitat and tend to increase niche availability for breeding birds.

Typically, with a harvest rotation age of 45 years or younger, commercial thinning operations would not be conducted. By incorporating a 60-year, or longer, harvest rotation into the forest management plan, Everett could commercially thin qualifying conifer-dominated stands. This activity generally results in healthier conifer stands with larger tree diameters and wider spacing. The latter characteristic allows spotted owls to move through these stands as they disperse, and to forage more effectively. With the inevitable defect that develops in older stands that are left free to grow, these stands also have the potential to develop into spotted owl prey habitat. This is one of the potential benefits to spotted owls from implementing a 60-year rotation age for the LCT forest lands. Specific management considerations and actions related to the decision to conduct commercial thinning are described below.

As conifer stands reach age 30 to 40 years, canopy coverage, shrub vigor, and forest health are assessed. Generally, commercial thinning will be employed to reduce excessive overstory canopy coverage to 60% where usage of ground-based yarding equipment is possible (slopes $\leq$ 35%) and log prices are sufficient to produce positive net revenue. Older stands will also be similarly assessed and thinned as needed when regeneration harvest will be delayed more than 20 years.

Spacing and vigor generally determine which trees to retain. Large, healthy, dominant conifer trees are generally retained as future crop and legacy trees but may be removed if too closely spaced. Suppressed, smaller co-dominant and dead or dying trees are generally removed from the stand though spacing considerations may result in the retention of some smaller co-dominant trees. Reasonable efforts will be made to avoid disturbing shade-tolerant saplings, thus contributing to the development of a second canopy layer.

Stand conditions vary across the covered area due to changes in aspect, elevation, exposure to disease, species composition, and natural events such as windstorms and wildfires. Some of these elements (e.g., disease) help create small-scale openings in the forest canopy and enhance structural diversity within stands. Such openings increase solar penetration which, in combination with soil disturbance, encourages understory shrub and ground cover germination. Yarding corridors and log landings can function

similarly. On average, yarding corridors vary from 50 to 80 feet apart and vary from 15 to 20 feet in width. Landings necessary for thinning activities will be spaced 400 to 800 feet apart and will vary from 40 to 60 feet in diameter. Together, landings and corridors may occupy eight to fifteen percent of a thinned stand. In combination with anticipated thinning skips and gaps, corridors and landings create variable-density stocking throughout the thinned stand.

4.1.6.5 Regeneration Harvest

Even-age regeneration harvests are not scheduled and may be conducted when revenue is required. However, even-age regeneration harvests are subject to an even-flow constraint intended to create and maintain an area-based balance of age classes and habitat types over time. There are approximately 1,781 acres of forest land designated for even-age management. Given a minimum harvest age of 60 years, an annual even-flow constraint limits harvest to approximately 30 acres per year ($30 \approx 1781/60$). The even-flow constraint will be applied over a five year period to allow market and management flexibility. Simply stated, even-age regeneration harvest of more than 150 acres, in any five-year period, is restricted.

There are approximately 268 acres of forest land designated for uneven-age management in the southern portion of the LCT. The intention of this management approach is to regenerate and maintain forest stands with three or more cohorts by harvesting in small groups ($\leq$ 1 acre). Uneven-age regeneration harvest will occur in 30-year cycles. At each harvest cycle, up to one third of the uneven-age management stands may be harvested in small groups ($\leq$ 1 acre). Regeneration harvesting will not recur within groups until regenerated trees reach age 120 years.

4.1.6.6 Road Construction and Maintenance

Under the agreement road construction and maintenance activities will be conducted to comply with WAC 222-24. The current Forest Practices Rules includes a requirement to develop Road Maintenance and Abandonment Plans (RMAPs), which were incorporated into the Forest Practices HCP (Washington Department of Natural Resources 2005). RMAPs are designed to improve the forest road systems on private ownerships to avoid and minimize effects to aquatic resources. Road construction and maintenance covered by the Forest Practices Rules are expected to minimize sediment to streams and minimize removal of shade trees near streams. New forest road construction requires removal of trees from the uplands but on small scale in comparison with other timber harvest activity.

4.1.7 Occupied Site Provisions

Under the terms of this SHA/CHEA, Everett will not be required to survey for murrelets or spotted owls. However, if Everett discovers, or is informed, of the presence of new (beyond what is known in 2015) occupied murrelet or spotted owl sites, actions will be implemented to minimize impacts of the taking for which they are authorized. These actions would help further the effectiveness of the covered lands for providing murrelet and spotted owl reproductive capacity. These actions are described for each species below.

Marbled Murrelet

Everett, in cooperation with WDNR and USFWS, will verify the status and location of any newly occupied murrelet site. The status and location of the site will determine Everett's conservation measures which will include minimizing noise disturbance and avoiding alteration of habitat within an occupied murrelet site. For the purposes of this SHA/CHEA provision, a murrelet site is defined as a minimum of

seven acres, up to a maximum of 70 acres, of contiguous suitable murrelet habitat for which murrelet occupation is documented, as defined by Forest Practices Rules.

Little extra conservation would be necessary when occupation occurs in baseline habitat, SSAs, enhanced riparian and wetland buffers, or adjacent SMAs. Over the duration of the agreement, these areas probably have the highest chance of occupancy because they are expected to provide the highest quality of habitat on the LCT. Elsewhere, if an occupied site is determined, harvesting will be deferred for a minimum period of five years, provided that only one occupied murrelet site will be so protected in any given year. After 5 years, and outside of the breeding season, Everett would be granted harvest of those acres. Everett may choose to collect information regarding surrounding habitat and use of occupied murrelet sites to help inform development of longer-term conservation strategies. Such information would be useful for realigning harvest boundaries or modifying harvest plans, including consideration of partial harvest and thinning options, in an effort to retain the occupied murrelet site for several additional years into the future.

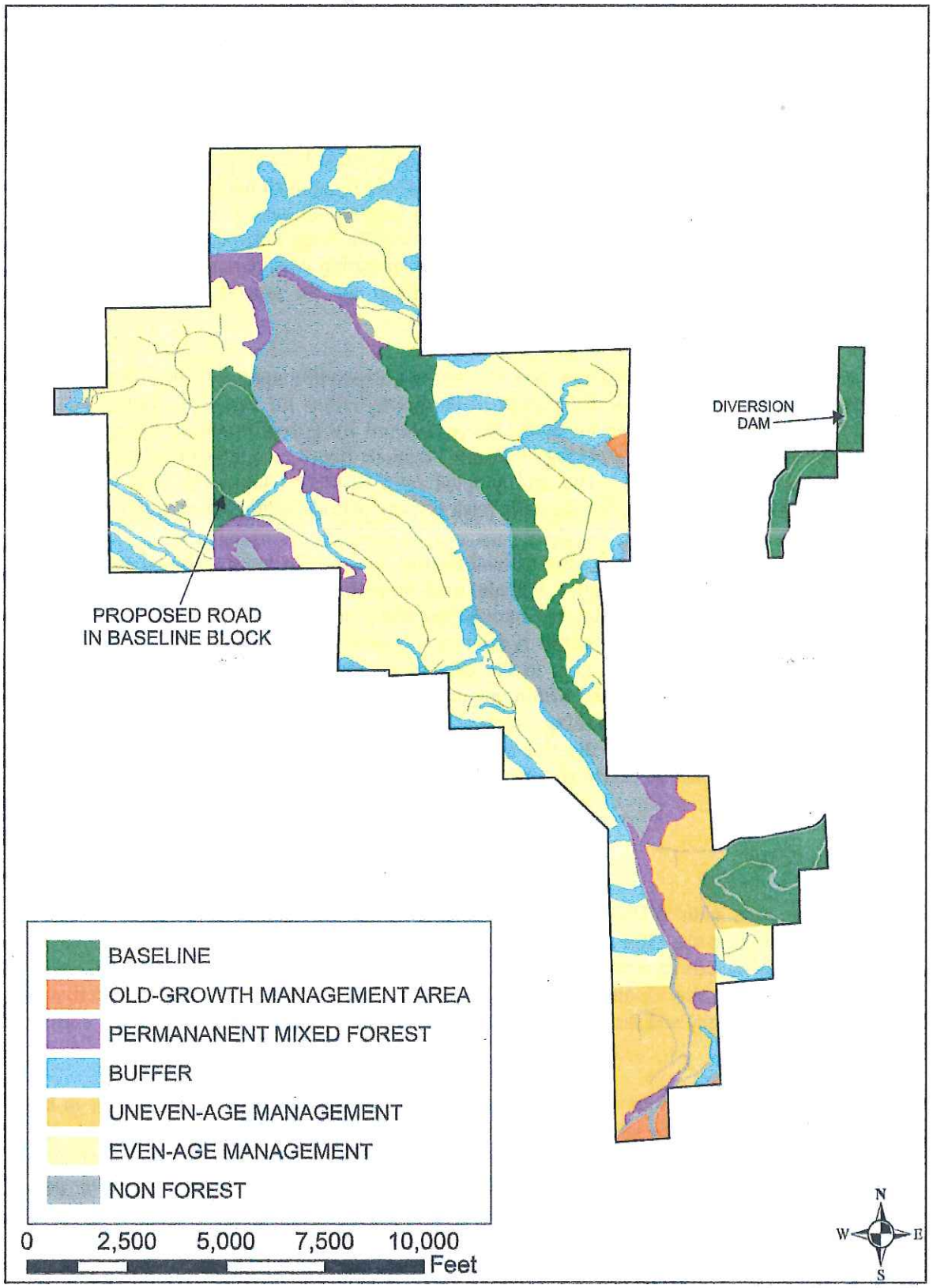
Operating restrictions for nearby activities may be required, depending upon the specific location of the occupied murrelet site. While actual disturbance distance restrictions for various activities may change over time, Everett will follow those currently being required by Forest Practices Rules (Washington Forest Practices Board 1996). The Washington Forest Practices Board recognized that noise disturbance might disrupt murrelet breeding behavior and adopted rules to protect murrelets from disturbance by imposing an operating restriction during the daily peak activity periods within the murrelet critical nesting season (April 1 through August 31). The daily peak activity period for murrelets (WAC 222-16-010) is 1 hour before official sunrise to 2 hours after official sunrise, and 1 hour before official sunset to 1 hour after official sunset. Restricted activities include road construction, operation of heavy equipment, blasting, timber felling, yarding, helicopter operations, and slash disposal or prescribed burning. In general, these activities are restricted within ¼ mile of occupied murrelet sites (WACs 222-24-030 and 222-30-050, -060, -065, -070, -100). Due to the lack of decibel information necessary to accurately determine impacts, blasting is prohibited within one mile of occupied murrelet sites during the daily peak activity periods within the critical nesting season. However, site-, equipment-, and method-specific information can be used to modify the one-mile distance. As more information becomes available regarding the effects of noise on murrelets, these threshold distances may be modified after discussion with USFWS and WDNR.

Northern Spotted Owl

Everett, in cooperation with WDNR and USFWS, will verify the status and location of any newly occupied spotted owl nest site. The status and location of the site will determine Everett's conservation measures which will include minimizing noise disturbance and avoiding alteration of habitat within an occupied spotted owl nest site. Under this SHA/CHEA provision, a spotted owl nest site is defined as the nest tree (of a breeding pair) and the 70 acres of highest quality suitable spotted owl habitat surrounding the nest tree.

Little extra conservation would be necessary when a spotted owl nest site is situated either in baseline habitat, SSAs, enhanced riparian and wetland buffers, or adjacent SMAs. These areas probably have the highest chance of occupancy because they are expected to provide the highest quality of habitat on the LCT. Elsewhere, if an occupied site is determined, harvesting will be deferred for a minimum period of five years, provided that only one occupied spotted owl site will be so protected in any given year. After 5 years, and outside of the breeding season, Everett would be granted harvest of those acres. Everett may choose to collect information regarding surrounding habitat and use of spotted owl nest sites to help

Figure 4-1: Management Areas



inform development of longer-term conservation strategies. Such information would be useful for realigning harvest boundaries or modifying harvest plans in an effort to retain the spotted owl nest site for several additional years into the future.

Operating restrictions for nearby activities may be required depending upon the specific location of the spotted owl nest site. While actual disturbance distance restrictions for various activities may change over time, Everett will follow those accepted by USFWS: 105 feet for heavy equipment; 195 feet for chainsaws; 180 feet for impact pile drivers, jackhammers, and rock drills; 360 feet for small helicopters or single-engine airplanes; and 1 mile for blasting, large helicopters, and large airplanes (U.S. Fish and Wildlife Service 2003). However, site-, equipment-, and method-specific information can be used to modify the 1-mile distances. As more information becomes available regarding the effects of noise on spotted owls these threshold distances may be modified in cooperation with USFWS and WDNR.

4.2 Net Conservation Benefit

The Safe Harbor Policy states that a SHA needs to identify management actions that would be reasonably expected to result in a net conservation benefit to the covered species. Following is a discussion of the net conservation benefit to both of the covered species expected as a result of Everett's enhanced forest management activities. Management actions with and without the terms and provisions of the agreement are compared and summarized in Table 4-2.

4.2.1 Conservation Management Plan

The management objective of this plan is to enhance and maintain habitat for murrelets and spotted owls while continuing to generate revenue from forest management operations. Deferral of timber harvest from over one-third of LCT forest lands represents a substantial contribution by Everett towards the conservation of murrelets and spotted owls. Deferred-harvest areas include potential suitable habitat with the highest likelihood of occupancy for both murrelets and spotted owls, now, and in the future on the covered lands.

Furthermore, by applying the site-specific silvicultural prescriptions and protective measures described heretofore, operable forest lands will develop greater within-stand structural diversity. This would be accomplished by managing forest lands with extended rotation lengths of at least 60 years in areas intended for even-age management and at least 120 years in areas intended for uneven-age management. Application of silvicultural prescriptions will produce the structural conditions needed to provide potential nesting habitat for murrelets and potential nesting, roosting, and foraging habitat for spotted owls, as well as facilitating spotted owl dispersal between areas of mature conifer-dominated forest habitat.

In addition to these conservation measures Everett also agrees to conduct periodic forest inventories, at ten-year intervals, to monitor changes in the amount and distribution of forest stand conditions in the covered area. The net benefits for each species are described below.

4.2.2 Marbled Murrelet

There are currently 447 acres that have been delineated as baseline habitat for murrelets. Other than baseline habitat in the vicinity of the Diversion Dam, occupancy is uncertain across the majority of the baseline acres, but over time, they are expected to further increase in quality and the chance of occupancy may increase in association with that habitat improvement. This is expected to be a net-conservation benefit.

There are approximately 210 acres in SSAs and 287 acres in buffers (see above). These acres will be deferred for the life of the agreement. These acres are not currently thought to be habitat for murrelets, but over the 50 year agreement time frame, some of these acres are expected to develop into habitat. These future acres of habitat are expected to provide habitat in excess of the baseline acres. Deferring harvest of mature forests comprising over one-third of the LCT forest lands ensures that mature forest conditions will be retained in large blocks on the covered lands for the term of the agreement. It is anticipated that conifer trees in deferred-harvest areas will increase in size and develop large limbs and other structures (e.g., mistletoe brooms) that could serve as murrelet nesting platforms. This is an expected net conservation benefit.

Should murrelets occupy forests within the covered lands, Everett will protect occupied sites according to measures described heretofore. These protection measures will ensure that murrelets will have an opportunity to reproduce successfully in deferred-harvest areas and, at least for the short term, on operable forest lands.

Conservation measures to develop potential suitable murrelet habitat, along with occupied site protective measures, are actions Everett would not otherwise implement on its forest lands; thus, implementation of the SHA/CHEA constitutes a net benefit for murrelets in this forest landscape.

4.2.3 Northern Spotted Owl

There are currently 447 acres that have been delineated as baseline habitat for the spotted owl. Current occupancy appears unlikely, but over time, the chance of a dispersing individual taking residence may increase in association with that habitat improvement. This is expected to be a net-conservation benefit.

By reforesting operable forest lands at lower densities and by applying pre-commercial thinning and/or commercial thinning prescriptions where needed and practical, Everett expects to increase variability in tree spacing and to promote understory shrub growth. Treated stands should develop the conditions necessary for spotted owl dispersal by age 40. Combined with the snag and downed wood program, conifer stands receiving these prescriptions are expected to provide spotted owls with dispersal opportunities for 20 years or more prior to harvest.

Deferred-harvest areas, comprising over one-third of the LCT forest lands, contain significant numbers and amounts of snags and downed wood. These features and structures are expected to increase in number and size as senescence ensues and are expected to provide nesting opportunities for spotted owls.

Should spotted owls occupy forests within the covered lands, Everett will protect occupied sites according to measures described heretofore. These protection measures will ensure that spotted owls will have an opportunity to reproduce successfully in deferred-harvest areas and, at least for the short term, on operable forest lands.

Conservation measures to develop spotted owl dispersal habitat with potential foraging and nesting habitat, along with occupied site protective measures, are actions Everett would not otherwise implement on its other forest lands; thus, implementation of the SHA/CHEA constitutes a net benefit for spotted owls in this forest landscape.

Table 4-2: Comparison of Conditions by Management Strategy – Net Benefit

Activity/Element	Option	Without SHA/CHEA	With SHA/CHEA	Difference (net conservation benefit)
Plant and monitor	N/A	≈ 40% of operable forest lands would be planted with 400-450 seedlings per acre. Such plantations are unlikely to sustain sufficient understory shrubs for spotted owl prey species.	No operable forest lands would be planted with more than 250 seedlings per acre.	An additional ≈ 40% of operable forest lands will now be likely to sustain sufficient understory shrubs for spotted owl prey species.
Mid-rotation management	No thinning	Trees grow until harvested. Operable forest lands planted with 400-450 seedlings per acre are unlikely to sustain sufficient understory shrubs for spotted owl prey species or to develop larger diameter trees.	Trees grow until harvested.	An additional ≈ 40% of operable forest lands will now be likely to sustain sufficient understory shrubs for spotted owl prey species and to develop larger diameter trees.
	PCT	≈ 40% of operable forest lands would be pre-commercially thinned to 300-325 trees per acre, and would sustain less understory shrubs for spotted owl prey species due to greater canopy coverage.	Operable forest lands would be thinned to 250 trees per acre.	An additional ≈ 40% of operable forest lands will now be likely to sustain sufficient understory shrubs for spotted owl prey species.
	CT	≈ 40% of operable forest lands would not be commercially thinned and would be unlikely to sustain sufficient understory shrubs for spotted owl prey species, due to greater canopy coverage, or develop trees with large diameters.	Operable forest lands would be thinned to reduce excessive canopy coverage to 60% at age 30-40 years or later, when regeneration harvest will be delayed more than 20 years.	An additional ≈ 40% of operable forest lands will now be likely to sustain sufficient understory shrubs for spotted owl prey species and develop trees with large diameters.
	Both PCT and CT	PCT and CT as described above.	PCT and CT as described above.	An additional ≈ 40% of operable forest lands will now be likely to sustain sufficient understory shrubs for spotted owl prey species and develop trees with large diameters.
Regeneration Harvest	N/A	≈ 40% of operable forest lands would be harvested for regeneration purposes when stand is 45 years old and might never become potentially suitable habitat for either murrelets or spotted owls. Tree sizes would be insufficient to provide nesting platforms for murrelets and it is unlikely that sufficiently large snags would ever develop for spotted owls.	Within areas intended for even-age management, regeneration harvest is delayed until age 60 years or more. Within areas intended for uneven-age management, regeneration harvest will not recur within groups until regenerated trees reach age 120 years or more.	An additional ≈ 40% of operable forest lands will now become potentially suitable habitat for murrelets and spotted owls.
		Forested wetlands on ≈ 40% of operable forest lands would be managed per WAC 222-30-020 only. Elsewhere, where protection from windthrow is established, forested wetlands would be prioritized when designating GTAs.	Forested wetlands would be managed per WAC 222-30-020 and would be prioritized when designating GTAs on all operable forest lands, with the following additional protection measures: • Special efforts will be made to avoid soil disturbance when operating within forested wetlands. • Seasonal constraints will be applied when operating on tractor-capable ground to further reduce the likelihood of disturbance.	Forested wetlands would be prioritized when designating GTAs on an additional ≈ 40% of operable forest land and additional protection measures would be applied to forested wetlands on all operable forest lands.
		Non-forested wetlands on ≈ 40% of operable forest lands would be managed per WAC 222-30-020 only. Elsewhere, buffers would be enhanced as follows: • The buffer zone around the non-forested wetland associated with Lost Lake will be at least 500 feet • Buffer zones around all other non-forested wetlands, greater than 5 acres, will be at least 200 feet. • Portions of the wetland buffer lying west of the Lake Chaplain Road may be harvested with adjacent even-age harvest units to protect facility infrastructure from windthrow damage.	Non-forested wetland buffers would be enhanced as follows on all operable forest lands: • The buffer zone around the non-forested wetland associated with Lost Lake will be at least 500 feet • Buffer zones around all other non-forested wetlands, greater than 5 acres, will be at least 200 feet. • Portions of the wetland buffer lying west of the Lake Chaplain Road may be harvested with adjacent even-age harvest units to protect facility infrastructure from windthrow damage. Otherwise, buffer trees will not be harvested during the term of this agreement.	Non-forested wetlands, greater than 5 acres, will be protected with enhanced wetland buffers on an additional ≈ 40% of operable forest lands; no non-forest wetland buffer trees will be harvested during the term of this agreement.

Activity/Element	Option	Without SHA/CHEA	With SHA/CHEA	Difference (net conservation benefit)
		Otherwise, buffer trees will only be harvested in small groups, each up to one acre, when necessary to promote understory forage development.		
		Wildlife reserve trees on ≈ 40% of operable forest lands are managed per WAC 222-30-020. Three wildlife reserve trees per acre must be retained only if extant and must be ≥ 10 feet in height and ≥ 12 inches DBH. Two green recruitment trees per acre are required and must be ≥ 30 feet in height and ≥ 10 inches DBH, but are harvestable when adjacent plantations reach the required dimensions. Thus, the numbers of such trees could vary from 0-5 trees per acre. Elsewhere, wildlife reserve trees are managed as follows: • ≈ 3 trees per acre are retained for manufacture into snags and/or decaying live trees per targets similar to the preferences listed in Table 4-1. Tree tops resulting from the manufacture of snags may be removed concurrently with harvest. • ≈ 2 large trees per acre are retained to serve as the equivalent of 8 logs per acre. Some or all of these trees may be felled. • ≈ 10 trees per acre are retained in GTAs constituting ≥ 5% of gross harvest area and are intended for future snag manufacture. • Old growth stumps and logs exhibiting unique habitat value are protected.	Wildlife reserve trees would be managed on all operable forest lands as follows: • Legacy trees will be retained in GTAs at a minimum rate of 9½ legacy trees per acre of harvest according to the preferences listed in Table 4-1. GTAs will not be harvested during the term of the agreement. Wherever possible, GTAs will be located adjacent to other deferred-harvest areas. • 2 trees per acre ≥ 20 inches Dbh will be transformed into snags by topping at a height ≥ 16 feet. Tree tops resulting from the manufacture of snags will be retained as downed wood. • Old growth stumps and logs exhibiting unique habitat value are protected.	An additional ≈ 40% of operable forest lands will now become potentially suitable habitat for murrelets and spotted owls. The acreage-weighted average density of trees retained, or converted to snags, on operable forest lands increases from 9-11 trees per acre to 11.5 trees per acre. The dimensions of retained trees also increase.
		Riparian buffers on ≈ 40% of operable forest lands are managed per WAC 222-30-021 only. Elsewhere, riparian buffers are managed as follows: • Fish Habitat – at least equal to the width of the riparian management zones specified by Forest Practices Rules. • Non-fish Habitat - at least 50 feet wide along the entire length of non-fish habitat streams, both perennial and seasonal. • Portions of the lake buffer lying west of the Lake Chaplain Road may be harvested with adjacent even-age harvest units to protect facility infrastructure from windthrow damage. Otherwise, buffer trees will be not be harvested, except when necessary to construct stream-crossing roads or to establish cable yarding corridors. • Trees may be topped when necessary to maintain target densities of snags and decaying live trees.	Riparian buffer zones are established and protected throughout the LCT as follows: • Fish Habitat – at least equal to the width of the riparian management zones specified by Forest Practices Rules. • Non-fish Habitat - at least 50 feet wide along the entire length of non-fish habitat streams, both perennial and seasonal. • Portions of the lake buffer lying west of the Lake Chaplain Road may be harvested with adjacent even-age harvest units to protect facility infrastructure from windthrow damage. Otherwise, buffer trees will be not be harvested, except when necessary to construct stream-crossing roads or to establish cable yarding corridors.	Enhanced riparian buffers will be established on an additional ≈ 40% of operable forest lands. None of the LCT riparian buffer trees will be harvested, or modified, except when necessary to construct stream-crossing roads or to establish cable yarding corridors.
Special set-aside areas	N/A	OMAs: 288 acres of old-growth management areas are managed without timber harvest for the benefit of late-successional wildlife.	Baseline habitat blocks included most of the original OMAs; the residual areas continue to be designated as OMAs and will not be harvested during the term of the agreement.	Reconfiguration of OMAs, PMFs, and scheduled harvest units results in four large blocks of potential suitable murrelet and spotted owl habitat. Murrelets and spotted owls are more likely to occupy larger

Activity/Element	Option	Without SHA/CHEA	With SHA/CHEA	Difference (net conservation benefit)
		PMFs: 336 acres of permanent mixed forest are managed to provide mixed forest habitat. Coniferous trees are topped when necessary to maintain target densities of snags and decaying live trees, and may be harvested in small groups, each up to one acre, when necessary to regenerate hardwood trees.	Baseline habitat blocks include ≈ 90 acres of PMF and ≈ 75 acres of forest land previously intended for even-age management. Most of remaining PMF will not be harvested during the term of the agreement. However, ≈ 56 acres of PMF will be converted to even-age management to offset the loss of harvest area.	blocks of habitat, which provide additional noise buffering.
Special Management Areas		SMAs contain unique habitat features or require additional protection under current Forest Practices Rules. SMAs include GTAs and potentially unstable slopes and land forms. Legacy trees in GTAs may be converted to snags and some harvest of potentially unstable slopes is technically possible under Forest Practices Rules. SMAs are not established on ≈ 40% of operable forest lands.	SMAs will be established throughout the LCT and will not be harvested during the term of this agreement.	SMA acreage increases by ≈ 32 acres. No SMAs will be harvested during the term of the agreement.
Occupied Site Protection	N/A	Harvest of occupied murrelet sites may proceed if SEPA review reaches a determination of non-significance or mitigated determination of non-significance. Suitable habitat surrounding a spotted owl site center outside of a SOSEA may be harvested outside of the nesting season (September 1 to February 29).	Should a murrelet or spotted owl nest site occur elsewhere, one occupied site per species would be protected in any given year for a minimum of five years.	The minimum protection period for occupied murrelet sites is increased by 2½ years. The minimum protection period for an occupied spotted owl site is increased by 5 years.
Alternate Plans	N/A	Only as necessary, but must be equal in effectiveness Forest Practices Rules.	Alternate plans, developed in consultation with USFWS and WDNR may be developed and utilized provided they meet or exceed the levels of resource protection described in this agreement.	Ensures that alternate plans contribute to the conservation of murrelets and spotted owls.

4.3 Incidental Take

No spotted owls are currently known to occupy the LCT. Murrelet occupancy has been observed by audio-visual survey for the Diversion Dam parcels (Figure 1-1) but not elsewhere. However, because Everett commits to manage the LCT for substantially longer rotations than the typical 45-year rotation, and to implement additional conservation measures, it is possible that these two listed species may occupy other portions of the covered area in the future. Such occupancy would be considered successful implementation of the agreement. At such time it is possible that incidental take of the species may occur.

During the term of the agreement, management activities will not return the covered lands to the baseline condition. This is because baseline blocks will not be harvested during the term of the agreement and because SSAs, SMAs and enhanced riparian buffers, while not currently in a habitat condition, substantial acres within them are expected to develop into habitat over the duration of the Agreement. Thus there is a high likelihood there will always be more than 447 acres of habitat for both the murrelet and spotted owl. If the City of Everett elects to withdraw from the Agreement, they would be subject to then-current ESA requirements and Forest Practices Rules.

Incidental take would likely be in the form of harm from covered forest management activities that result in habitat degradation, and/or harassment from forest management activities that cause disturbance to covered species. Incidental take in the form of harassment by disturbance could occur anywhere in the covered area.

Pre-commercial and commercial thinning will likely occur in every decade of the Permit term and if in close proximity to the covered species, could potentially cause disturbance. Harm and harassment could occur during regeneration harvests that will occur during each decade of the Permit term. Everett will perform routine road maintenance and construction activities, including rock pit development, which may disturb covered species. The conditions of incidental take are further described for each species below.

4.3.1 Marbled Murrelet

Potential murrelet habitat will likely develop in enhanced riparian and wetland buffers and be dispersed in patches throughout the covered area in the form of baseline blocks, SSAs, and SMAs. Over time, these stands are expected to further develop into higher quality habitat with an increase in larger trees with more abundant nest platforms.

Suitable murrelet habitat currently amounts to 447 acres within the baseline blocks and may eventually total 1,066 or more acres as SSAs, SMAs, and enhanced riparian and wetland buffers mature over time. Because these areas are expected to be the most structurally diverse across the covered lands, if occupancy were to occur, it would probably be in association with one or more of these areas. These areas will be protected for the 50-year permit term. If these areas become occupied, direct take of murrelets sites is not expected to occur because the SSAs, SMAs, and riparian and wetland buffers will be retained throughout the Permit term. However, if one of these areas becomes occupied, forest management activities in proximity may cause harassment through noise and/or visual disturbance.

There are approximately 1,794 acres of forest potentially available for regeneration harvest and another 268 acres available for uneven aged management. These acres are less likely to provide murrelet nesting habitat over time because the forest will be periodically harvested. If occupancy does occur over these acres, and Everett is aware of it, the site would be protected for a minimum of 5 years, as described in 4.1.7. This provides the opportunity for reproduction outside of the designated baseline blocks and SSA, SMAs, and riparian and wetland buffers. After 5 years, and outside of the breeding season, Everett would

be granted harvest of those acres. If murrelets occupy these areas and Everett is unaware of it, direct take could happen. This is considered very unlikely however.

4.3.2 Northern Spotted Owl

Incidental take for spotted owls is usually assessed when there is an established spotted owl territory, which is a either a pair or territorial single bird. Incidental take is not typically described for a dispersing juvenile bird that may be in transition from a natal area to more permanent residence. Nevertheless, the discussion that follows considers both dispersing individuals and an established territory.

In the future, spotted owls may find suitable habitat for dispersal and foraging purposes on the LCT as the stands grow older with snags and defective trees developing within. Older forest patches will occur in riparian areas and also be dispersed in patches throughout the tree farm in baseline blocks, SMAs and SSAs. Across the covered lands, these protected areas probably have the highest likelihood of potential occupancy. Thus, the probability of a spotted owl pair nesting on the property is possible, although the likelihood is low due to the presence of barred owls, distance to source populations, and management practices associated with adjacent landowners, which are not conducive to creation or retention of spotted owl habitat.

Incidental take of spotted owls, should it occur on the LCT, would likely be in the form of disturbance to dispersing spotted owls associated with the covered forest management activities on an annual basis, including, but not limited to commercial thinning, regeneration harvest, and road construction and maintenance activities, once larger blocks of contiguous mature stands have developed. Subsequent harm may occur as roosting, foraging, and dispersal habitat is degraded across the covered lands when commercially mature forest stands are harvested. However, there will always be dispersal habitat available for spotted owls to move to when disturbed and this habitat will always be greater than the baseline level available currently. Take in the form of harassment associated with removal of dispersal habitat is difficult to quantify because dispersal habitat will develop and be harvested at different rates throughout the Permit term.

Harassment take from the covered activities could occur if in proximity to an occupied nest site. Although it is very unlikely that spotted owls currently nest on the LCT and although Everett has agreed to protect nest sites from habitat removal and implement disturbance restrictions for known occupied nest sites for an agreed-upon period of time, take could occur from harassment by forest management activities adjacent to a stand occupied by territorial spotted owls. If spotted owls occupy the LCT and Everett is unaware of it, take in the form of harm could happen, but this is considered very unlikely for the reasons stated previously. Take could also occur after 5 years for a newly located owl site. If this should happen, timber harvest would occur outside of the breeding season.

4.4 Monitoring and Reporting

Everett will conduct monitoring activities as follows:

- conduct periodic forest inventories, at ten-year intervals, to monitor changes in the amount and distribution of forest stand characteristics (including presence of murrelet nesting platforms) on the covered area;
- monitor amount of baseline habitat; and
- monitor known nest sites of murrelets and spotted owls on the covered lands.

Everett reporting will include, but not be limited to, the following:

- forest management activities, including thinning operations and regeneration harvests that occurred;
- maps showing the location of forest management activities in relationship to SSAs, along with current and newly established SMAs and GTAs;
- size and species of legacy trees retained in newly established GTAs;
- condition of designated baseline habitat;
- information on snags created to improve the quality of spotted owl dispersal habitat;
- any new data on covered species occurrences and/or habitat use; and
- the nest protection strategy being implemented for new murrelet and spotted owl nest sites.

Reports will be provided on a biennial basis for the first 10 years of the agreement, and every five years for the remainder of the agreement term.

4.5 Funding

Everett was incorporated in the spring of 1893. Lake Chaplain is the terminal reservoir for drinking water supply to Everett and to the majority of Snohomish County. Everett is solvent and expects to manage its watershed forests well beyond the term of this agreement and is committed to providing the funding necessary to implement the SHA/CHEA.

5 Responsibilities of Parties

5.1 Everett Responsibilities

Everett agrees to implement the management actions and other provisions of this SHA/CHEA, to adhere to the Terms and Conditions of the Permit, and to provide sufficient funding and other resources necessary to implement the agreement.

With reasonable advance notice, Everett will allow USFWS, WDNR, and WDFW personnel, or other properly permitted and qualified persons designated by USFWS, to enter the enrolled property at reasonable hours and times for the general purposes specified in Title 50 Code of Federal Regulations § 13.21(e)(2).

5.2 U.S. Fish and Wildlife Service Responsibilities

Upon execution of the SHA and satisfaction of all other applicable legal requirements, USFWS will issue an enhancement of survival permit to Everett in accordance with ESA Section 10(a)(1)(A), authorizing take of the covered species as a result of lawful activities on the enrolled property in accordance with the terms of such permit. The term of the permit will be 50 years.

USFWS will provide Everett with technical assistance on implementation of the agreement, to the maximum extent practicable, when requested.

USFWS will ensure that the terms of the SHA will not be in conflict with any ongoing conservation or recovery programs for the covered species.

5.3 Shared Responsibilities

Everett, USFWS, WDNR, and WDFW agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon by the parties.

Nothing in this SHA/CHEA will be construed to limit or constrain Everett or USFWS, WDNR, and WDFW, or any other entity from taking additional actions at its own expense to protect or conserve the covered species.

Nothing in this SHA/CHEA will limit the ability of federal and state conservation authorities to perform their lawful duties, and to conduct investigations as authorized by statute and by court guidance and direction.

Everett and USFWS will have all remedies otherwise available to enforce the terms of the SHA and the Permit, except that neither will be liable in damages for (1) any breach of this SHA, (2) any performance or failure to perform and obligation under this SHA, (3) termination of the Permit or SHA, or (4) any other cause of action arising from this SHA.

6 Landowner Assurances

Through this SHA/CHEA, USFWS provides Everett assurances that if additional conservation measures are deemed necessary for species covered by this agreement, USFWS may request such measures, but only if they are limited to modifications within the enrolled property, if any, for the covered species and these measures maintain the original terms of the SHA/CHEA to the maximum extent possible. Additional conservation measures are voluntary on the part of Everett and will not involve the commitment of additional land, water, or financial compensation or additional restrictions on the use of land, water, or other natural resources otherwise available for development or use under the original terms of the SHA/CHEA without the consent of Everett. Failure of Everett to perform additional conservation measures for covered species requested by USFWS will not constitute a breach of this SHA/CHEA or result in any liability under the ESA.

These assurances allow Everett to alter or modify its enrolled property, even if such alteration or modification results in the incidental take of the covered species to such an extent that the take returns the covered species or its habitat to the originally agreed upon or amended baseline conditions. These assurances depend on compliance with the obligations in this SHA/CHEA and in the Permit by Everett.

Further, the assurances apply only to this SHA/CHEA and only if the SHA is being properly implemented by Everett, and only with respect to the covered species.

7 Safe Harbor Agreement Management

An Implementation Agreement (IA) is attached to this SHA/CHEA as Appendix A. The IA is an integral part of the SHA and Permit. The terms of the IA guide implementation of the SHA. By executing this SHA, both Everett and USFWS agree to be bound by the terms of the IA during the term of the SHA and Permit. In the event of any direct contradiction between the terms of the IA and the SHA, the terms of this IA shall control. In all other cases, the terms of the IA and the terms of the SHA shall be interpreted to be supplementary to each other.

The sections below describe provisions contained in the IA and are intended for explanatory purposes only.

7.1 Safe Harbor Agreement Termination

In accordance with Section 13 of the IA, Everett can relinquish this SHA by providing USFWS with 30 days written notice. Everett acknowledges that terminating the SHA will result in a corresponding termination of the Permit and Everett's loss of the regulatory assurances provided by the Permit for the covered species. Everett may return the enrolled property to baseline conditions as provided in the IA, even if the expected net conservation benefits have not been realized, if done prior to the termination date.

7.2 Safe Harbor Agreement Renewal

As provided in Section 6 of the IA, the SHA can be extended with the written approval of both Everett and USFWS.

7.3 Safe Harbor Agreement Amendments

As provided in Section 16 of the IA, modifications and amendments to this SHA can be proposed by Everett or USFWS and must be provided to the other parties in writing. Everett and USFWS will have at least 30 days to evaluate proposed modifications or amendments, and all modifications or amendments must be approved in writing by each.

7.4 Transfer of Safe Harbor Agreement Benefits

As provided by Section 11 of the IA, Everett agrees to notify USFWS in writing if ownership of all or a portion of the enrolled property is to be transferred to another owner. If Everett transfers full or partial ownership of the enrolled property, USFWS will regard the new landowner as having the same rights and obligations as Everett under this SHA, if the new landowner agrees, in writing, to become a Party to the original SHA and any subsequent amendments.

7.5 Land Acquisitions & Dispositions

As provided in Section 11 of the IA, Everett may seek to add, at its discretion, new forest lands acquired within a 5-mile radius of the lands covered by the original SHA if the intent is to manage the newly acquired lands according to the SHA.

7.6 Unforeseen Circumstances

It is likely that over the agreement term, catastrophic events such as fires, ice storms, and wind storms will occur, but it is not possible to predict the magnitude of these events. If the outcome of such events is that forest lands are destroyed or degraded so that baseline habitat for covered species is reduced by more than 10 percent, Everett will coordinate with USFWS, WDNR, and WDFW to make a good faith effort to modify the SHA in a manner to achieve the original goals and objectives of the SHA. If replacement habitat becomes necessary, forest that is currently habitat would be emphasized followed by forest that would become habitat in the shortest time frame. Platform inventories could be used to inform this process.

8 Forest Practices Rules Interface

The following is a summary of the additional management strategies, beyond standard Forest Practice Rules, that are commitments under this Agreement. More detail regarding each strategy can be found in the sections referenced below.

Timber Harvest Limitations: Other than the proposed right-of-way through baseline habitat and minimal tree removal which may be necessary to reconstruct, repair, and/or maintain the Diversion Dam and its associated tunnels, portals, pipelines, and access roads (Figure 4-1), timber harvesting within Baseline Blocks (Section 4.1.1), Special Set Asides (Section 4.1.2), or Green Tree Areas (Section 4.1.3.1) is not permitted without prior agreement modification. Harvesting will be limited to the area and type shown on Map 4-1 and described in Section 4.1.1 through Section 4.1.6.5.

Potentially Unstable Slopes: Potentially unstable slopes and landforms will not be harvested during the term of the agreement (Section 4.1.3.2).

Occupied Site Provisions: If habitat within the plan area becomes occupied by either spotted owls or marbled murrelets the applicable site protection measures in Section 4.1.7 will be implemented.

Wetlands:

- Forested wetlands: Seasonal constraints will be applied when operating on tractor-capable ground within forested wetlands (Section 4.1.3.3).
- Non-forested wetlands: Buffer zones around Type A and Type B wetlands, greater than 5 acres, will be at least 200 feet. Portions of the wetland buffer lying west of the Lake Chaplain Road may be harvested with adjacent even-age harvest units to protect facility infrastructure from windthrow damage. Otherwise, buffer trees will not be harvested during the term of the agreement (Section 4.1.4).

Riparian Buffers:

- Fish habitat waters (Type S and Type F): Buffer zones will be at least equal to the total width of the riparian management zones specified by Forest Practices Rules. Portions of the lake buffer lying west of the Lake Chaplain Road may be harvested with adjacent even-age harvest units to protect facility infrastructure from windthrow damage. Otherwise, buffer trees will only be harvested where stream-crossing roads or cable yarding corridors are necessary.
- Non-fish habitat waters (Type Np and Type Ns): Buffer zones will be at least 50 feet wide along the entire stream length. Buffer trees will only be harvested where stream-crossing roads or cable yarding corridors are necessary.

Green Tree Areas: Legacy trees will be retained in GTAs at a minimum rate of 9½ trees per acre of harvest according to the preferences listed in Table 4-1(Section 4.1.3.1).

Snags & Downed Wood: During regeneration harvesting two trees per acre harvested, at least 20 inches DBH, will be transformed into snags by topping at a height of sixteen feet or more. The tops of these trees will serve as downed wood. In addition, old-growth stumps from western red cedar and Douglas-fir trees, along with logs exhibiting unique habitat value, such as large diameter logs exhibiting active wildlife usage, will be protected during harvest operations. Other decaying logs exhibiting no more than a trace of intact bark will also be retained as downed wood (Section 4.1.5).

9 Signatures

By our signatures below, each Party agrees to abide by and uphold the provisions of this Safe Harbor Agreement, the Implementation Agreement attached in Appendix A, and any conditions of the Enhancement of Survival Permit associated with this Safe Harbor Agreement.

Eric V. Rickerson — 11/20/15

State Supervisor, U.S. Fish and Wildlife Service — Date

Ray Stephanson — 12/20/2015

Mayor, City of Everett, Washington — Date

ATTEST:

City Clerk

APPROVED AS TO FORM

JAMES D. ILES, City Attorney

10 References

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Appendix A

Implementation Agreement

IMPLEMENTATION AGREEMENT

by and between

CITY OF EVERETT, WASHINGTON

and the

U.S. FISH AND WILDLIFE SERVICE

This IMPLEMENTATION AGREEMENT ("IA") is entered into as of the date of issuance of an Enhancement of Survival Permit by the UNITED STATES FISH AND WILDLIFE SERVICE, an agency of the Department of the Interior of the United States of America ("USFWS"), to CITY OF EVERETT, WASHINGTON ("Everett"), hereinafter collectively called the "Parties" and individually, a "Party."

1.0 RECITALS

The Parties have entered into this IA in consideration of the following facts:

1.1 Everett owns approximately 3,729 acres of commercial forest land in Snohomish County, in the vicinity of Sultan, Washington, as more fully described in Appendix B. Such property, as modified from time to time in accordance with Section 11 hereof, is referred to herein as the "Lake Chaplain Tract";

1.2 Everett, with technical assistance from the USFWS, has prepared a Safe Harbor Agreement ("SHA"), a conservation plan covering certain listed species under the jurisdiction of USFWS;

1.3 Everett has developed a series of enhancement and management measures to conserve listed species and to meet other applicable requirements of the Endangered Species Act ("ESA") to support issuance of an enhancement of survival permit ("ESP") by USFWS pursuant to Section 10(a)(l)(A) of the ESA;

1.4 Everett has developed a conservation plan that provides immediate and long- term benefits to local and regional populations of covered species, causing Everett to, among other things, (a) engage in certain silvicultural activities designed to develop stands of timber which will serve as suitable habitat for certain covered species; (b) provide information on the use of managed timber stands by the covered species if they are discovered; and,

1.5 The purpose of this IA is to implement the SHA upon which the ESP is based.

THEREFORE, the Parties hereto hereby agree as follows:

2.0 DEFINITIONS

The following terms shall have the following meanings for all purposes of this IA:

2.1 "Agency" means the USFWS.

2.2 "IA" means this Implementation Agreement as the same may be amended from time to time.

2.3 "Baseline Conditions" means those conditions established in Section 4 of the SHA and approved by USFWS upon issuance of ESP.

2.4 "Covered Lands" means the "Lake Chaplain Tract" as that term is defined herein.

2.5 "Covered Species" means northern spotted owl (*Strix occidentalis caurina*) and marbled murrelet (*Brachyramphus marmoratus*), as the list of covered species may be modified from time to time in accordance with the terms hereof.

2.6 "ESA" means the Endangered Species Act, 16 U.S.C. § 1531, et seq., as the same may be amended or reauthorized from time to time and any successor statute or statutes.

2.7 "ESP" means the enhancement of survival permit to be issued by the USFWS to Everett as provided in this IA as the same may be amended from time to time in accordance with the terms hereof.

2.8 "Plan" means the certain SHA prepared by Everett, described in Section 1.2.

2.9 "Lake Chaplain Tract" means the property owned by Everett in Snohomish County, Washington as described in Appendix B, as it may be modified from time to time in accordance with the terms hereof.

3.0 INCORPORATION OF THE PLAN

The provisions of Sections 3 and 4 of the Plan are intended to be, and by this reference are, incorporated into this IA. In the event of any direct contradiction between the terms of this IA and the Plan, the terms of this IA shall control. In all other cases, the terms of this IA and the terms of the Plan shall be interpreted to be supplementary to each other.

4.0 TERMS USED

Terms defined and used in the Plan and the ESA shall have the same meaning when used in this IA, except as specifically noted.

5.0 PURPOSES

The purposes of this IA are:

5.1 To ensure implementation of the terms of the Plan;

5.2 To describe remedies and recourse should any Party fail to perform its obligations, responsibilities, and tasks as set forth in this IA; and

5.3 Provide assurances to Everett that, as long as the terms of the Plan and the ESP issued pursuant to the Plan and this IA are fully and faithfully performed, no additional mitigation will be required with respect to covered species except as provided for in this IA, 50 C.F.R. § 17.22(b)(5), or as required by law.

6.0 TERM

6.1 Duration. The ESP, Plan, and this IA will remain in effect for fifty (50) years from the effective date of the ESP unless earlier relinquished or terminated as herein provided.

6.2 Extension. Upon the mutual written agreement of both Parties, the Parties may extend the ESP, Plan, and this IA. In furtherance of this provision, the Parties shall meet on or about September 1 of the thirtieth (30th), fortieth (40th), and fiftieth (50th) anniversaries of the effective date of the ESP to discuss potential extension of the ESP, Plan, and IA.

7.0 FUNDING

Everett warrants that it has, and shall expend, such funds as may be necessary to fulfill its obligations under the ESP, the Plan, and this IA. Everett shall promptly notify USFWS of any material change in Everett's financial ability to fulfill its obligations.

8.0 RESPONSIBILITIES OF THE PARTIES

8.1 Everett's Responsibilities. In consideration of the issuance of an ESP authorizing any incidental take which may result from activities conducted in accordance with the Plan, and in consideration of the assurances provided by this IA, Everett agrees to:

a. Perform all obligations in the Plan, the ESP and this IA; and

b. Fully fund all costs needed to perform its obligations under the ESP and the Plan.

8.2 USFWS' Responsibilities. USFWS agrees pursuant to its authorities to:

a. Issue an ESP to Everett upon execution of this IA authorizing any incidental take of Covered Species which may result from activities conducted in accordance with the Plan. The ESP will include the assurances set forth in 50 C.F.R. § 17.22(c)(5).

b. Cooperate with and provide technical assistance to Everett and attend meetings requested by Everett to consider matters relevant to the Lake Chaplain Tract, the Plan, and the ESP, or any of the operations or other activities contemplated thereunder.

9.0 OCCUPATION BY NON-COVERED OR NEWLY LISTED SPECIES.

After the ESP is issued, a listed species not addressed in the Plan may occupy Covered Lands. Should this occur, Everett may request, as a Minor Modification, that USFWS add the species to the ESP. If USFWS concludes that a listed species is present on Covered Lands as a direct result of Everett's conservation actions taken under the Plan, and that addition of the species to the ESP would be consistent with ESA § 7(a)(2) and § 10(a)(1)(A), the USFWS will promptly modify the ESP to reflect the changed circumstances and revise the Baseline Condition description to include the newly-listed species as a Covered Species under this IA, setting forth the Baseline Condition for that species as it exists on the date of the permit amendment. Assurances in the ESP will not be extended to non-covered or newly-listed species if their presence is the result of activities not directly attributable to Everett's implementation of the Plan.

10.0 INSPECTIONS AND MONITORING

10.1 Reporting. Everett will provide USFWS with the reports described in Section 4.4 of the Plan at the notice address then in effect for USFWS and will provide any available information reasonably requested by USFWS to verify the information contained in such reports.

10.2 Inspections. The USFWS may inspect the Lake Chaplain Tract in accordance with its applicable regulations. Except where USFWS has reason to believe that Everett may be acting in violation of applicable laws or regulations or in breach of the ESP or this IA, USFWS will notify Everett at least twenty-four (24) hours in advance of its inspection and will allow Everett's representatives to accompany the Agency's representatives making such inspection. The USFWS shall ensure that any individual conducting an inspection of the Lake Chaplain Tract on its behalf performs such inspection in compliance with all regulations and statutes applicable to the Agency and in compliance with all of the

terms and conditions of this IA, including without limitation, the requirement of advance notice where applicable. Any Agency representative inspecting the Lake Chaplain Tract will promptly brief Everett on the information learned during any such inspection.

11.0 LAND TRANSACTIONS

11.1 In General. Nothing in this IA, the ESP, or the Plan shall limit Everett's rights to acquire additional lands in and around the Lake Chaplain Tract or elsewhere. Unless such lands are added to the Lake Chaplain Tract in the manner provided below, however, any such lands as may be acquired by purchase, exchange or otherwise will not be covered by the ESP. Nothing in this IA, the ESP, or the Plan shall require Everett to include in the Lake Chaplain Tract or to add to the ESP any additional lands it may acquire. Any lands which Everett elects to include in the ESP and the Plan in accordance with this IA shall thereafter constitute a portion of the Lake Chaplain Tract and all references to the "Lake Chaplain Tract" shall be deemed to include a reference to such acquired lands.

11.2 Inclusion of Additional Property as Covered Lands. If Everett acquires any additional lands which are within five (5) miles of the Lake Chaplain Tract and such lands are not inhabited or regularly visited by any Covered Species, Everett may request a Minor Modification to include such lands in the ESP in accordance with the terms of this IA. Everett shall provide notice to the USFWS of its desire to include such additional lands, along with a specific description of the location, legal description, and baseline conditions of such additional property. If, within 30 days after receiving such notice, USFWS does not object to the proposed inclusion, Everett's request will be deemed approved by USFWS and will be treated as a Minor Modification of the ESP, Plan, and IA pursuant to Section 16.2 of this IA. If USFWS objects to the Minor Modification for any reason, including without limitation that USFWS believes that the proposed inclusion may result in adverse effects on the environment that are new or significantly different from those analyzed in connection with the original Plan or additional take not analyzed in connection with the original Plan, and Everett desires to continue seeking inclusion, the Parties will proceed in good faith to negotiate an amendment of the Plan in accordance with Section 16.3.

11.3 Removal of Property from Covered Lands. Except as provided in this section, Everett may not sell any lands included in the Lake Chaplain Tract to, or exchange any portion thereof with, any other party during the term of this IA unless, by Minor Modification, (a) the Parties agree to delete such lands from the ESP and Plan; or (b) the lands are transferred to a third party who has agreed to be bound by the terms of the Plan and otherwise meets the requirements set forth in Section 11.4 below. In responding to any request to remove lands from Covered Lands, the USFWS shall consent to such proposed removal unless it finds that the proposed removal of land would materially compromise the effectiveness of the Plan. In such a case, the USFWS will object to the Minor Modification in writing, and the Parties shall promptly meet to discuss potential amendments to the ESP or Plan to address USFWS' concerns. If Everett sells or exchanges any of the lands comprising a portion of the Lake Chaplain Tract and such transfer is permitted by the terms hereof, from and after such transfer, such lands shall not be deemed a portion of the Lake Chaplain Tract and all references to "Lake Chaplain Tract" shall be deemed not to include a reference to such transferred lands.

11.4 Transfers to New Landowner Bound by the Plan. Everett may sell or exchange lands comprising a portion of the Lake Chaplain Tract to a Permitted Transferee. As used herein, a "Permitted Transferee" shall mean a transferee who has elected to be bound by the ESP and Plan as it applies to the transferred lands; and who has, in the reasonable opinion of the USFWS, sufficient financial resources to adequately fund its affirmative obligations under the Plan; and who has entered into an agreement in form and substance reasonably satisfactory to USFWS to implement the terms of the ESP and the Plan. Upon request of the Permitted Transferee and satisfaction of all legal requirements, the USFWS will issue an ESP to the Permitted Transferee covering the transferred lands. Everett will not be responsible for the performance of the ESP or Plan on lands transferred to a Permitted Transferee.

12.0 SUSPENSION OF THE ESP

In accordance with the process contained in applicable regulations, USFWS may suspend the ESP for any material violation by Everett of the ESP, the Plan, or this IA, or any other basis for suspension expressly provided for in an Agency regulation.

12.1 Notice Prior to Suspension. Except where USFWS determines that emergency action is necessary to protect any endangered or threatened species, USFWS shall not suspend the ESP without first providing Everett notice in writing of the facts or conduct which may warrant the suspension and the actions necessary to redress the violation(s) and achieve compliance with the ESP and this IA. Such notice will be provided in accordance with applicable regulations. USFWS shall also consult with Everett concerning actions to be taken to effectively redress the violation(s) that would otherwise necessitate a suspension. In addition, USFWS agrees to make good faith efforts to resolve any disputes with Everett in accordance with the informal dispute resolution mechanism described in Section 14.5 hereof prior to suspending the ESP, unless an immediate suspension is necessary to protect any Covered Species.

12.2 Opportunity to Cure Prior to Suspension. In connection with any notice of suspension given to Everett hereunder, USFWS shall at the same time provide Everett with a written statement of the actions reasonably required to redress the alleged violation(s). Any suspension shall be lifted immediately upon the reasonable determination by USFWS, that the alleged violation(s) has been effectively redressed. Upon full performance of the necessary actions specified by USFWS in its written notice, USFWS shall immediately lift the suspension.

13.0 RIGHTS TO TERMINATE, RELINQUISH, AND REVOKE THE ESP

13.1 Rights of Everett. Everett reserves the right to relinquish the ESP prior to its expiration, and to return Covered Lands back to Baseline Conditions upon either expiration or relinquishment of the ESP.

13.2 Rights of USFWS. The ESP may be revoked by USFWS only in accordance with 50 C.F.R. § 17.22(c)(7).

13.3 Effect of Termination, Relinquishment and Revocation. Any termination, relinquishment, or revocation of the ESP automatically terminates the Plan and this IA. Activities thereafter conducted on the Lake Chaplain Tract will be subject to all applicable provisions of the ESA and related regulations as if the ESP had never been issued. A termination or revocation by USFWS limited to one or more species but less than all of the species then provided for in the ESP shall apply only to the affected species and the ESP and this IA shall continue in full force and effect as to all other Covered Species.

13.4 No Post-Termination Mitigation. The Parties acknowledge that Everett's compliance with the ESP, the Plan, and this IA will result in Everett having fully mitigated for any incidental take of any Covered Species prior to the occurrence of such take. Therefore, if Everett is in compliance with the terms of this IA, upon termination, relinquishment, or revocation of the ESP, Everett shall have no further obligations hereunder.

14.0 REMEDIES AND ENFORCEMENT

14.1 In General. Except as set forth below, each Party shall have all remedies otherwise available to enforce the terms of this IA, the ESP, and the Plan.

14.2 No Monetary Damages. No Party shall be liable in damages to any other Party for any breach of this IA, any performance or failure to perform a mandatory or discretionary obligation imposed

by this IA or any other cause of action arising from this IA.

14.3 Injunctive and Temporary Relief. The Parties acknowledge that the Covered Species are unique and that their loss as species would result in irreparable damage to the environment, and that therefore injunctive and temporary relief may be appropriate to ensure compliance with the terms of this IA.

14.4 Enforcement Authority of the United States. Nothing contained in this IA is intended to limit the authority of the United States government to seek civil or criminal penalties or otherwise fulfill its enforcement responsibilities under the ESA or other applicable law.

14.5 Dispute Resolution. The Parties recognize that good faith disputes concerning implementation of, compliance with, or suspension, revocation or termination of this IA, the Plan, or the ESP may arise from time to time. The Parties agree to work together in good faith to resolve such disputes, using non-binding mediation, other alternative dispute resolution processes, or such other procedures upon which the Parties may later agree. However, if at any time any Party determines that circumstances so warrant, it may seek any available remedy without waiting to complete dispute resolution. If USFWS has reason to believe that Everett may have violated the ESP, the Plan, or this IA with respect to any Covered Species, it will notify Everett in writing of the specific provisions which may have been violated, the reasons the Agency believes Everett may have violated them, and the mitigation the Agency proposes to impose to correct or compensate for the alleged violation. Everett will then have sixty (60) days, or such longer time as may be mutually acceptable, to respond. If any issues cannot be resolved within thirty (30) days, or such longer time as may be mutually acceptable, after Everett's response is due, the Parties will consider non-binding mediation and other alternative dispute resolution processes. The Parties reserve the right, at any time without completing informal dispute resolution, to use whatever enforcement powers and remedies are available by law or regulation, including but not limited to, in the case of the USFWS, suspension or revocation of the ESP.

15.0 LIMITATIONS AND EXTENT OF ENFORCEABILITY

15.1 Safe Harbor Assurances. Until revocation, relinquishment, termination, or expiration of the ESP, Everett may use Covered Lands in any otherwise lawful manner that does not move such Covered Lands below Baseline Conditions as those terms are defined in this IA and the Plan. These assurances remain valid for as long as Everett complies with the Plan and the ESP. In return for Everett's efforts, the USFWS will authorize incidental take of Covered Species under Section 10 (a)(1)(A) of the ESA, and comply with all other No Surprises policies and regulations then in force. The resulting ESP shall permit Everett to lawfully take Covered Species or to modify habitat on Covered Lands to return population levels and habitat conditions to those agreed upon as Baseline Conditions.

15.2 Property Rights and Legal Authorities Unaffected. Except as otherwise specifically provided herein, nothing in this IA shall be deemed to restrict the rights of Everett to use or develop Covered Lands; *provided*, that nothing in this IA shall absolve Everett from such other limitations as may apply to such lands, or interests in land, under other laws of the United States and the State of Washington.

Property Rights Retained. The Parties recognize that Covered Lands may provide multiple benefits beyond conservation of Covered Species, including, but not limited to, carbon sequestration benefits, clean water benefits, and open space benefits ("Additional Benefits"). Nothing in this IA is intended to limit Everett's rights to participate in any program or enter into any agreement to recognize the full financial value of these Additional Benefits, provided that Everett complies with the ESP.

16.0 MODIFICATIONS AND AMENDMENTS

16.1 Modifications to this IA. This IA may be amended only with the written consent of each of the parties hereto.

16.2 Minor Modifications.

a. Procedures. Either Party may propose minor modifications to the Plan, the Permit, or this IA ("Minor Modifications") by providing written notice to the other Party. Such notice shall include a statement of the reason for the proposed modification and an analysis of its environmental effects, including its effects on operations under the Plan and on Covered Species. The Parties shall use reasonable efforts to respond to proposed modifications within thirty (30) days of receipt of such notice. Proposed Minor Modifications shall become effective, and the Plan shall be deemed modified accordingly, immediately upon both Parties' written approval. Among other reasons, a Party may object to a proposed minor modification based on a reasonable belief that such modification would result in adverse effects on the environment that are new or significantly different from those analyzed in connection with the original Plan, or additional take not analyzed in connection with the original Plan. If a Party objects to a proposed Minor Modification, the proposal is not approved as a Minor Modification but may be processed as an amendment of the ESP in accordance with Section 16.3.

b. Examples. Minor modifications to the Plan, ESP, and this IA include, but are not limited to, the (1) corrections of typographic, grammatical, and similar editing errors that do not change the intended meaning; (2) correction of any maps or exhibits to correct errors in mapping or to reflect previously approved changes in the Permits or the Plan; (3) minor changes to survey, monitoring or reporting protocols; and (4) clarifications to vague or undefined language or phrases; (5) the addition or removal of Covered Lands in accordance with Section 11 of this IA; and (6) the addition of non- covered or newly-listed species in accordance with Section 9.0 of this IA.

16.3 Amendments. Any modifications to the Plan or this IA other than those made pursuant to Section 16.2 of this IA shall be processed as an amendment of the Plan, Permit, and IA in accordance with all applicable legal requirements, including but not limited to the ESA, National Environmental Policy Act, and applicable USFWS regulations.

17.0 MISCELLANEOUS PROVISIONS

17.1 No Partnership. Neither this IA nor the Plan shall make or deemed to make any Party to this IA the agent or partner of the other Party.

17.2 Severability. If any provision of this IA or the Plan is found invalid or unenforceable, such provision shall be enforced to the maximum extent possible and the other provisions shall remain in effect to the extent they can be reasonably applied in the absence of such invalid or unenforceable provisions.

17.3 Successors and Assigns. This IA and each of its covenants and conditions shall be binding on and shall inure to the benefit of the Parties and their respective successors and assigns. Assignment or other transfer of the ESP shall be governed by the USFWS' regulations under the regulations in force at the time.

17.4 Notice. Any notice permitted or required by this IA shall be in writing, delivered personally to the persons listed below, or shall be deemed to be given five (5) days after deposit in the United States mail, certified and postage prepaid, return receipt requested and addressed as follows, or at such other

address as any Party may from time to time specify to the other Parties in writing. Notices may be delivered by facsimile or other electronic means, provided that they are also delivered personally or by certified mail. Notices shall be transmitted so that they are received within the specified deadlines.

Everett:	Superintendent of Operations Everett Public Works 3200 Cedar Street Everett, WA 98201 Phone: (425) 257-8800 Fax: (425) 257-8882
USFWS:	State Supervisor U.S. Fish & Wildlife Service Washington Fish and Wildlife Office Lacey, WA 98503 Telephone: 360-753-9440

17.5 Elected Officials not to Benefit. No member of or delegate to Congress shall be entitled to any share or part of this IA, or to any benefit that may arise from it.

17.6 Availability of Funds. Implementation of this IA and the Plan by the Agency is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this IA shall be construed by the Parties to require the obligation, appropriation or expenditure of any money from the U.S. Treasury. The Parties acknowledge that the Agency shall not be required under this IA to expend any federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

17.7 No Third Party Beneficiaries. Without limiting the applicability of rights granted to the public pursuant to the ESA or other federal law, this IA shall not create any right or interest in the public, or any member thereof, as a third-party beneficiary hereof, nor shall it authorize anyone not a Party to this IA to maintain a suit for personal injuries or damages pursuant to the provisions of this IA. The duties, obligations, and responsibilities of the Parties to this IA with respect to third parties shall remain as imposed under existing law.

17.8 Relationship to the ESA and Other Authorities. The terms of this IA shall be governed by and construed in accordance with the ESA and applicable federal law. In particular, nothing in this IA is intended to limit the authority of the Agency to seek civil or criminal penalties or otherwise fulfill their responsibilities under the ESA. Moreover, nothing in this IA is intended to limit or diminish the legal obligations and responsibilities of the USFWS as a n agency of the federal government. Nothing in this IA shall limit the right or obligation of any federal agency to engage in consultation required under Section 7 of the ESA or other federal law; however, it is intended that the rights and obligations of Everett under the Plan and this IA shall be considered in any consultation concerning Everett's use of the Plan Area.

17.9 References to Regulations. Any reference in this IA, the Plan, or the ESP to any regulation or rule of the USFWS shall be deemed to be a reference to such regulation or rule in existence at the time an action is taken, except that Everett may rely on state and federal regulations in effect at the time this IA became effective to protect its rights under this IA.

17.10 Applicable Laws. All activities undertaken pursuant to this IA, the Plan, or the ESP must be in compliance with all applicable state and federal laws and regulations.

17.11 Terms Do Not Run With the Land. The terms hereof are not intended to run with the

land and will not bind subsequent purchasers of timberlands in the Lake Chaplain Tract.

17.12 Entire Agreement. This IA, together with the Plan and the ESP, constitute the entire agreement among the Parties. The terms contained in this IA supersede any and all other agreements, either oral or in writing, among the Parties with respect to the subject matter hereof and contains all of the covenants and agreements among them with respect to said matters, and each Party acknowledges that no representation, inducement, promise or agreement, oral or otherwise, has been made by any other Party or anyone acting on behalf of any other Party that is not embodied herein. The Parties agree that this IA forms an integral part of the ESP and the Plan, and that execution of the ESP and Plan by the Parties shall constitute full acceptance of the terms of this IA.

Appendix B

Chaplain Tract Ownership Locations

Township	Range	Section(s)
T29N	R7E	25, 26, 35, 36
T29N	R8E	31, 32, 33
T28N	R7E	1
T28N	R8E	6, 7, 8, 17

Appendix C

Baseline Determination Procedures

Marbled Murrelet Habitat Assessment Report for Baseline Habitat for City of Everett, Lake Chaplain Tract for a Safe Harbor (USFWS) and Cooperative Habitat Enhancement (WDFW/WDNR) Joint Agreement

22 April 2014

S.M. Desimone (USFWS) and G. Bell (WDFW)
Maps created August 2013 by Michael Farnum (USFWS)

Introduction

The City of Everett approached US Fish and Wildlife Service (USFWS) in early 2013 to propose development of a Safe Harbor Agreement for Marbled Murrelets and Spotted Owls for the Lake Chaplain Tract (LCT) of the City of Everett Watershed. At the request of City of Everett (hereafter, Everett), on 28 May 2013 Fish and Wildlife Biologists Mark Ostwald, Marty Acker and Steve Desimone representing USFWS (WFWO Lacey, WA), Forester Jeff May from Washington Department of Natural Resources (WDNR) and managing Forester Mark Hitchcock (Everett) participated in a site visit to view forest conditions on portions of the LCT, which is located about 6 miles north of Sultan, WA (Figure 1). The LCT is predominantly forested land surrounding Lake Chaplain, has timber revenue value but is managed primarily for water quality. The intent of this and a subsequent field visit was to assess potential habitat for baseline conditions for a proposed Safe Harbor Agreement (SHA) for Marbled Murrelets through USFWS, and possibly a joint Cooperative Habitat Enhancement Agreement (CHEA) for murrelets consistent with WDNR State Forest Practices.

From 1993-1995, Marbled Murrelets had been detected from the western shore of Lake Chaplain and murrelets were documented landing on the lake, resting and preening, and inbound and outbound flight activity over LCT was observed (Washington Dept. Fish and Wildlife Marbled Murrelet Database). The 1994 survey maps and narratives show murrelets were observed circling over the lake and the adjacent NW shoreline and uplands. Murrelet flight paths of figure-8s and some full and half circle visual detections over the NW lake shore and forest area were mapped, and may suggest occupied behavior; however, there was no particular reference in the observer notes about the height of the birds relative to the canopy height, so the observations defaulted to Presence-status detections. Without reference to canopy height, no definitive occupancy status could be concluded (pers. comm., Jane Jenkerson, WDFW Marbled Murrelet Data steward).

In 2008, consultant Biota Pacific, Inc. established 2 Marbled Murrelet survey areas in the LCT, one on the eastern sector of the lakeshore (the green outline polygons north of area 'B' in Figure 1) and the second on the Sultan River bend ("Horseshoe") of LTC (area 'D', Figure 1) (Biota Pacific 2008). Biota conducted 2-year protocol surveys in 2007-2008 at each site as per Forest Practices Rules, for which habitat is defined as predominantly conifer stands that have larger conifer trees that are at least 32 inches dbh, having limbs or other platforms ≥7 inches in horizontal width ≥50 above ground level (agl). No detections were recorded during the surveys. The data was reviewed by WDFW and met compliance standards. No other areas or stands were identified by Biota Pacific for survey in the LCT.

Methods

During our field visit of 28 May, biologist Desimone conducted an opportunistic visual walk-through assessment of habitat trees, accompanied by Ostwald and Acker and led by Hitchcock. Two older forested conifer stands around the lake were traversed in detail on 28 May: the ESE sector of the lakeshore and adjacent uplands (Figure 3) and the NW lakeshore area uplands (Figure 2). Other

potential habitat trees were viewed briefly from the lakeshore road. Platform structures for each potential habitat tree encountered were tallied, tree species noted, and an ocular estimate of DBH was recorded in a field notebook. Locations (i.e., waypoints) were recorded using Garmin CSx-60 GPS receivers (capable accuracy ± 3 meters).

According to City of Everett, about half of the LCT forest stands belong to the 81 years and older age class (M. Hitchcock, pers. comm.). We used this age-class layer as a starting point on which to screen stands using orthophotographs for potential habitat. During our 28 May visit, we were led by Forester Hitchcock to two older forest stands specifically to evaluate their habitat potential. After confirming and documenting presence of habitat in both of these stands (Figure 1: Areas 'A' and 'C'), we used the photo "forest canopy signature" of these areas, plus the surveyed habitat identified by Biota Pacific (2008), to develop a search image for other potential habitat patches on the LCT. Prior to the second field visit, USFWS and WDFW reviewed 2012 NAIP orthophotos and Google Earth for additional older forest patches and noted these for ground verification, which were subsequently field-evaluated for murrelet habitat by Desimone and Gary Bell (WDFW Habitat Program Biologist, Olympia).

The second field assessment for murrelet habitat was conducted on 16 July 2013 by the author, G. Bell and Everett Forester Hitchcock. Everett provided transport and access to the identified potential areas and accompanied the agency biologists in the field. We then conducted ground verification by walking through potential areas, beginning in upland stands west of the lake shore (Figure 1, area A and stands south of A), then driving around the north end of the lake, and then east and south east to the next identified stand (Figure 1, areas B and C), finishing in the Sultan River stand at the south end of the LTC (Figure 1, area D). Data was recorded in the areas we encountered habitat, as described above.
It is important to note that this effort was not a systematic platform inventory for all stands we visited, but that we searched areas using primarily the local knowledge of Everett staff and our independent orthophoto interpretation of older-appearing forest. We did not walk through the murrelet survey sites previously identified by Biota Pacific on the east lakeshore and Sultan River.

Results

Tree locations (waypoints), tree species, approximate dbh, and platform information of habitat trees we encountered during both field visits are shown in Table 1, and the waypoints mapped (Figures 1-5). Of the areas of potential habitat interest, we found a new area of habitat during our field reviews not previously identified as Marbled Murrelet habitat by Biota Pacific in the west-northwest area of the lakeshore and uplands (Figure 2; pink polygon depicted in Map A). Overall, there are 3 general areas where concentrations of murrelet habitat trees were located: the new west-northwest area; the east-southeast shore and uplands shown in pink in Figures 3 and 4; and the Sultan River bend as shown in pink in Figure 5. The areas total about 394 GIS acres as drawn (Figures 2-5; pers. comm., Michael Farnum, USFWS).

Management Recommendations

USFWS and WDFW propose that the 3 polygons of habitat comprising the 394 acres be designated as the Baseline condition for Marbled Murrelet (Figure 1: pink outline polygons). These stands were also presumed to be potential Spotted Owl habitat and were reviewed by biologists Gary Bell (WDFW) and Steve Desimone (USFWS) through orthophotographs and a ground verification visit 16 July 2013. The three polygons of forest totaling approximately 394 acres are synonymous with the Baseline condition polygons determined for murrelets, and are also proposed to represent the Baseline condition for Spotted Owls (pers. comm., USFWS/Everett meeting notes, 09 Sept 2013).

We thank Michael Farnum and Teal Waterstrat USFWS, Lacey, WA for producing the maps.

References

Biota Pacific, Inc. 2008. Jackson Hydroelectric Project (FERC Pr. No. 2157) Revised Study Plan 11: Marbled Murrelet Surveys Final Technical Report. Prepared for Snohomish County PUD No. 1, Everett, WA. October2008, Biota Pacific Environmental Services, Inc., Bothell, WA

Table 1. List of data points for 28 May and 16 July 2013, Lake Chaplain Tract, City of Everett Watershed. Data recorded/compiled by Steve Desimone, USFWS and Gary Bell, WDFW. Datum WGS84.

WayPoint ID	lat	long	date	tree spp	dbh (in)	platforms (7" ≥50 ft agl)?	comments
851			5/28/2013	park			
852			5/28/2013	DF	all ≥3 ft	yes	6+ older remnants
853			5/28/2013	DF	>32	yes	
854			5/28/2013	DF	>32	yes	scattered remnants out to east
855			5/28/2013	Habitat break south for 100 meters			
856			5/28/2013	Habitat break line			
857			5/28/2013	DF		yes	old cohort
858			5/28/2013	DF	>32	yes	
859			5/28/2013	WRC	>32	yes	
860			5/28/2013	Park			
861			5/28/2013	DF	40	yes	
862a			5/28/2013	WH	>32	yes	
862b			5/28/2013	WH	>32	yes	
863			5/28/2013	DF	>32	yes	
864			5/28/2013	DF	≥36	yes	
865			5/28/2013	DF	≥36	yes	
866			5/28/2013	DF	≥36	yes	
867			5/28/2013	2 Platform trees near rd			
868			5/28/2013	Platform tree near rd			
869			5/28/2013	DF	36	yes	
870			5/28/2013	platform trees distant west in drainage			
871			5/28/2013	platform trees distant west in drainage			
872			5/28/2013	platform trees distant west in drainage			
873			5/28/2013	platform trees distant west in drainage			
874			5/28/2013	2 platform trees on lakeshore road			
899	47.93132429	-121.80269287	7/16/2013 17:03	END			
898	47.92866513	-121.80236933	7/16/2013 16:33	snag	~7 ft		
897	47.92892371	-121.80173951	7/16/2013 16:25	DF	48"	yes	
896	47.92888491	-121.80162644	7/16/2013 16:23	snag			
895	47.92929604	-121.80144673	7/16/2013 16:19	WHs (multiple	>32	yes	
894	47.92951774	-121.80125428	7/16/2013 16:17	WH	~30	yes	
893	47.92956007	-121.80133903	7/16/2013 16:16	WH	no record	multiple trees mistletoe plats	
892	47.93152998	-121.80101632	7/16/2013 16:02	unk			
891	47.93168211	-121.80153877	7/16/2013 16:00	Parking reference point			
890	47.93034378	-121.80884468	7/16/2013 15:58	John Deere east of stream			
889	47.95197604	-121.82313826	7/16/2013 15:12	"Cub" unit			Not habitat
888	47.94178080	-121.83197823	7/16/2013 13:34	"Standpipe" n	n/a	n/a	
887	47.94280213	-121.83891501	7/16/2013 13:10	Parking reference point			
886	47.95605795	-121.85411979	7/16/2013 11:55	unk	unk		
885 + ~100ft @ 050°	--	--	7/16/2013 11:33	DF	>32	yes	
885	47.95787539	-121.85578594	7/16/2013 11:31	DF	>32	yes	
884	47.95780482	-121.85600597	7/16/2013 11:30	unk	unk		
883 + ~100ft @ 270°	--	--	7/16/2013 10:25	WH	unk	yes	
883	47.95814714	-121.85865792	7/16/2013 10:23	Reference point for platform tree			
882	47.95676731	-121.85920467	7/16/2013 10:06	DF	40	yes	
881	47.95672548	-121.85961094	7/16/2013 10:00	WH	>24	yes	
880	47.95645977	-121.86004629	7/16/2013 9:55	WH	unk	yes	
879	47.95645860	-121.86037034	7/16/2013 9:53	WH	~20	yes	
878	47.95593691	-121.86090661	7/16/2013 9:42	position check			
877	47.95504491	-121.86029297	7/16/2013 9:31	DF	>54	yes	
876	47.95529544	-121.86029934	7/16/2013 9:28	DF	30	yes	
875	47.95526879	-121.86022843	7/16/2013 9:27	Parking reference point			
E2	47.95002398	-121.82558536	7/16/2013 7:09	reference point			
E1	47.95305002	-121.82498111	7/16/2013 7:07	reference point			
SS	47.95455004	-121.82913945	7/16/2013 7:05	reference point			
D	47.94481949	-121.83934936	7/16/2013 7:03	reference pnt; not habitat; larger cedar, hemlock; no plats			
C	47.95119250	-121.85939033	7/16/2013 7:00	reference point			
A1	47.95785964	-121.86030177	7/16/2013 6:53	reference point			
A	47.95475188	-121.85811988	7/16/2013 6:49	reference point			

Figure 1. Locator map for 28 May and 16 July 2013 field visits by USFWS and WDFW for proposed Safe Harbor/Cooperative Habitat Enhancement Agreements for Marbled Murrelet and Spotted Owl.

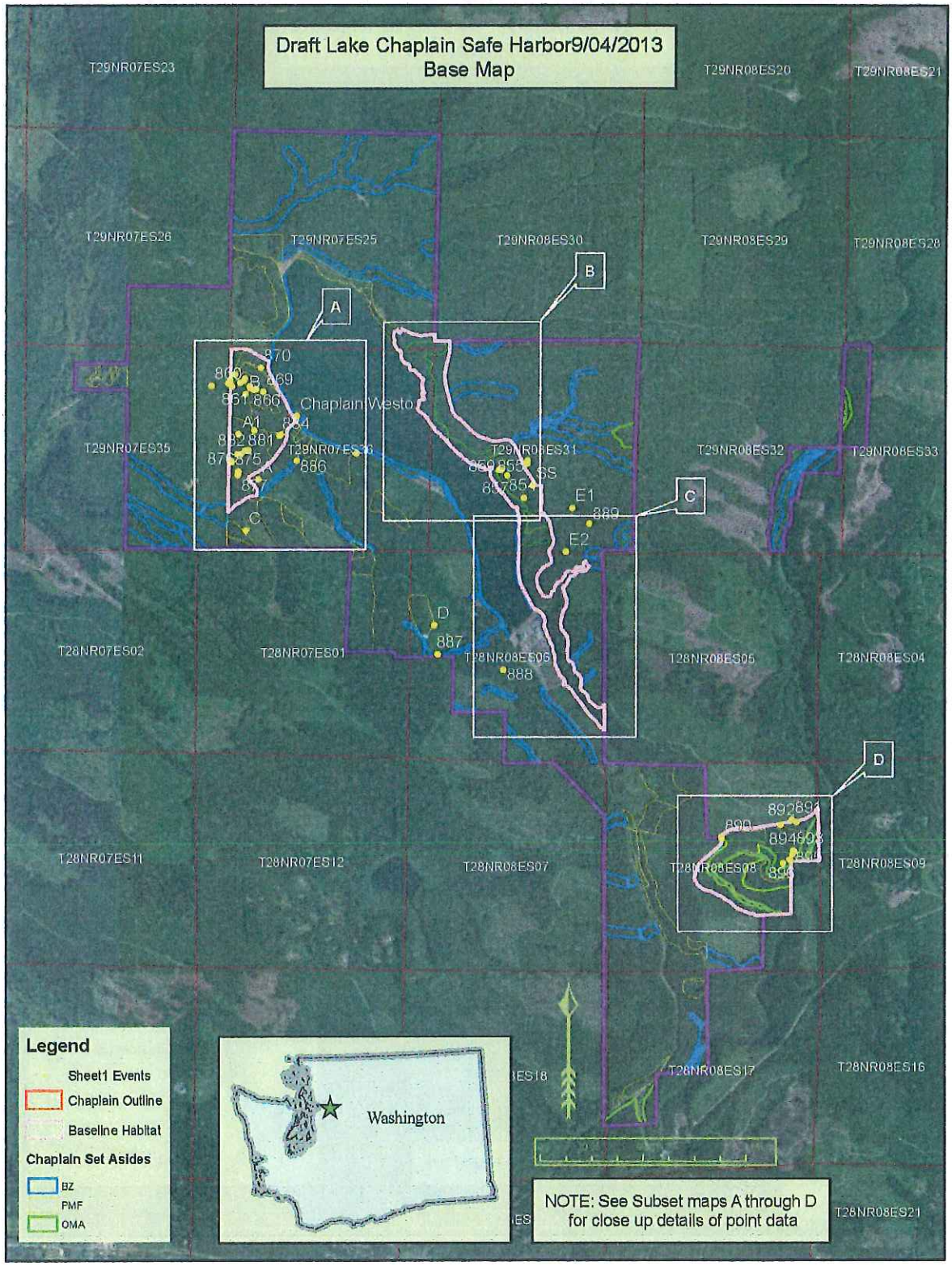


Figure 2. map A

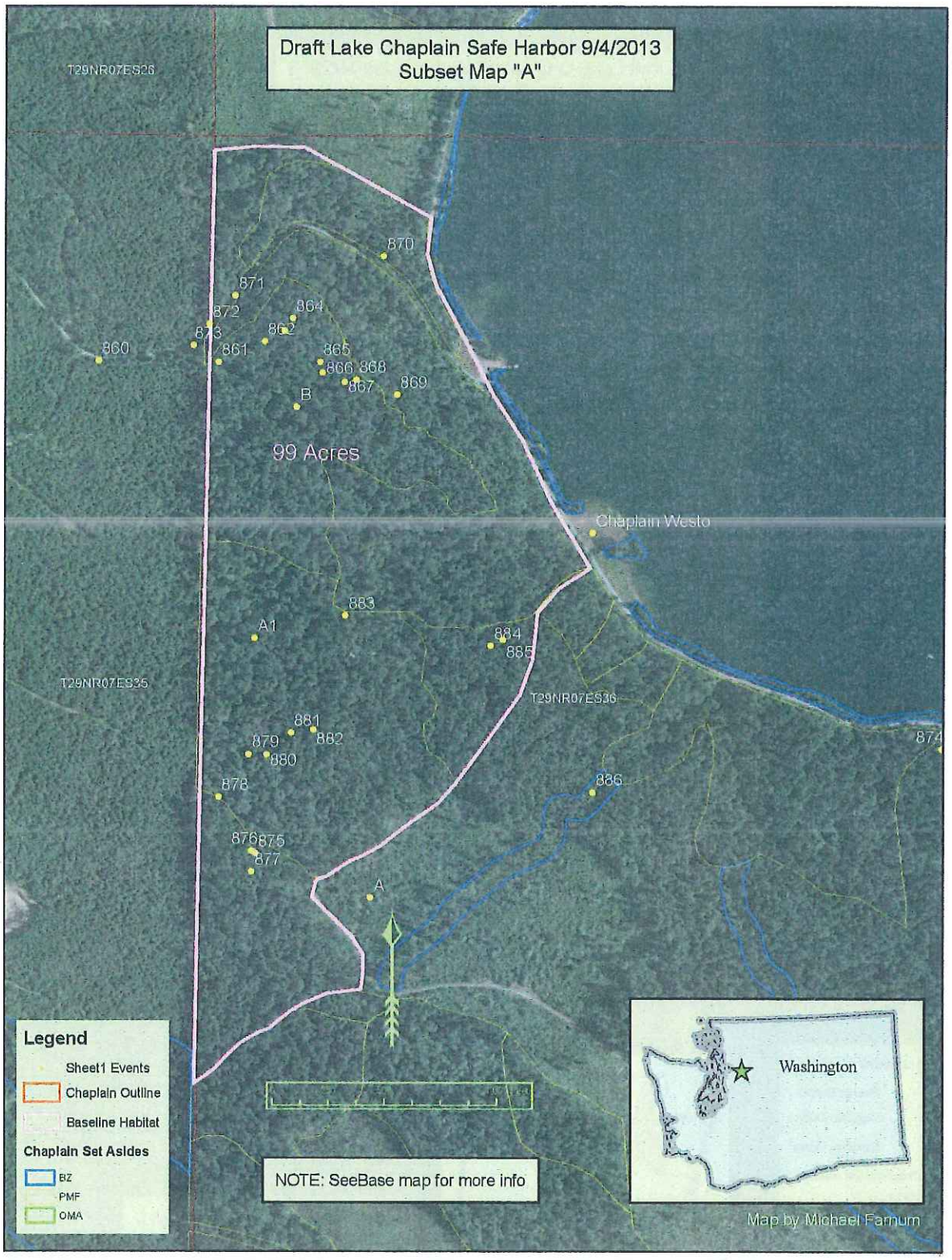


Figure 3. Map B.

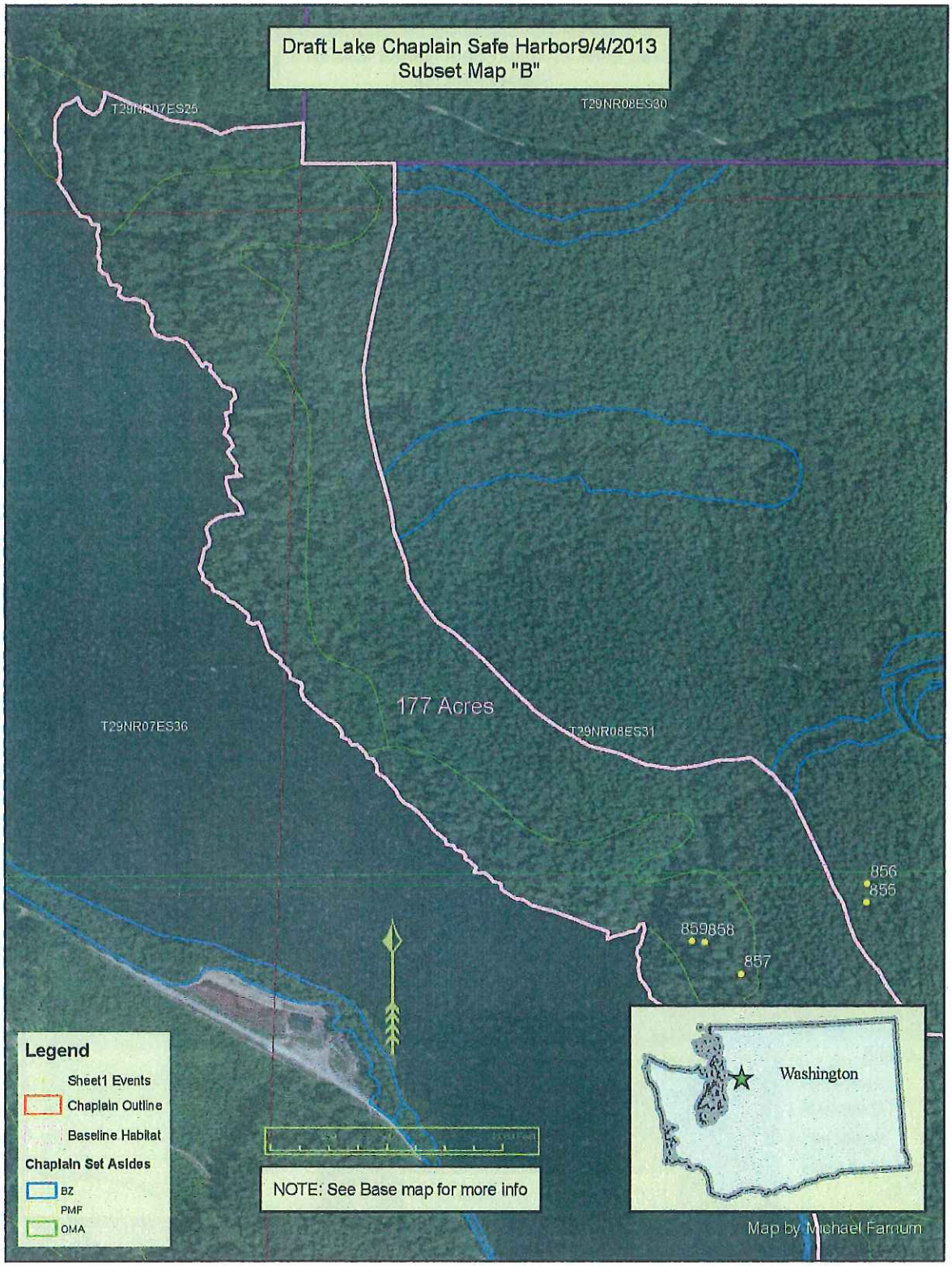


Figure 4. Map C

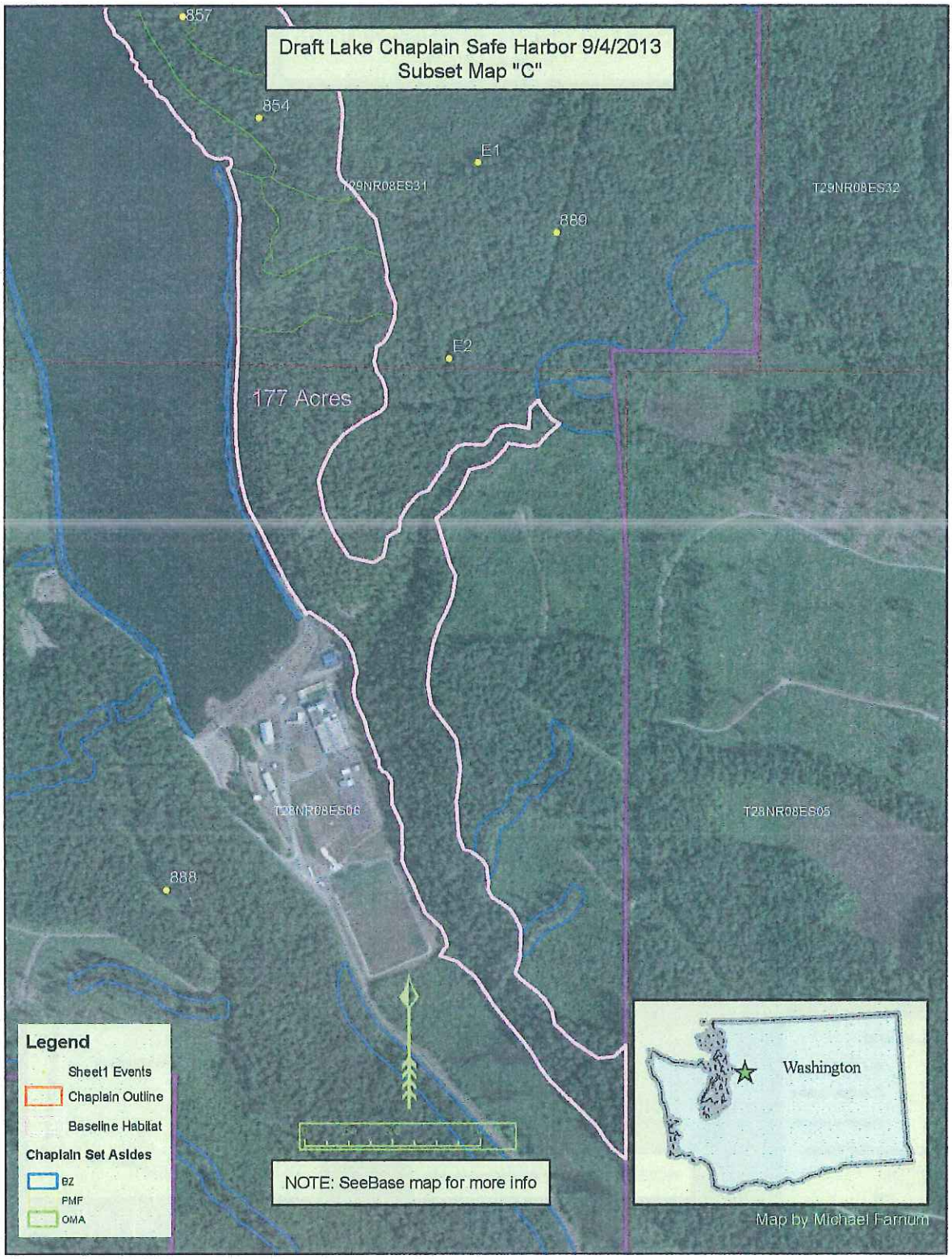
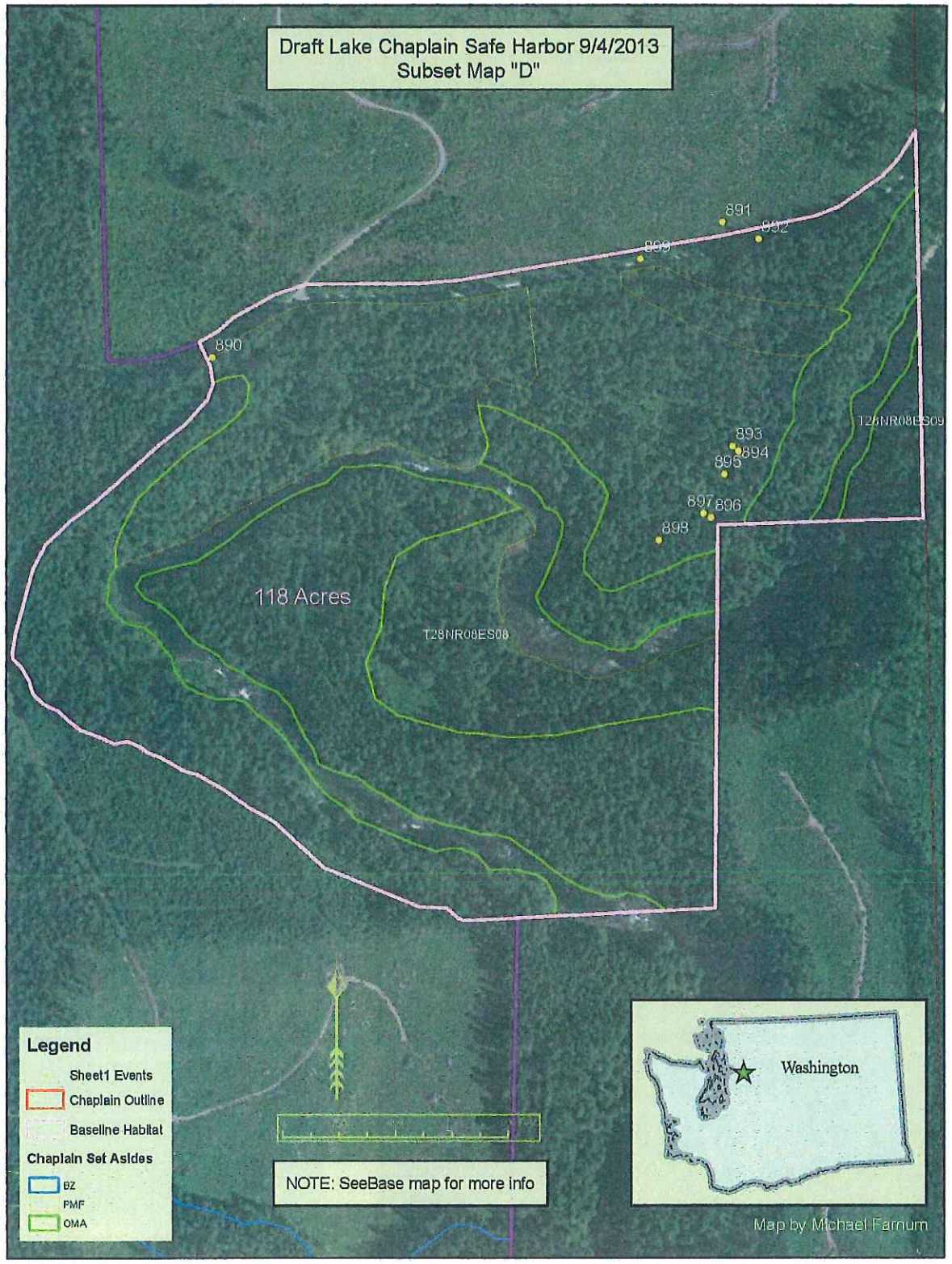
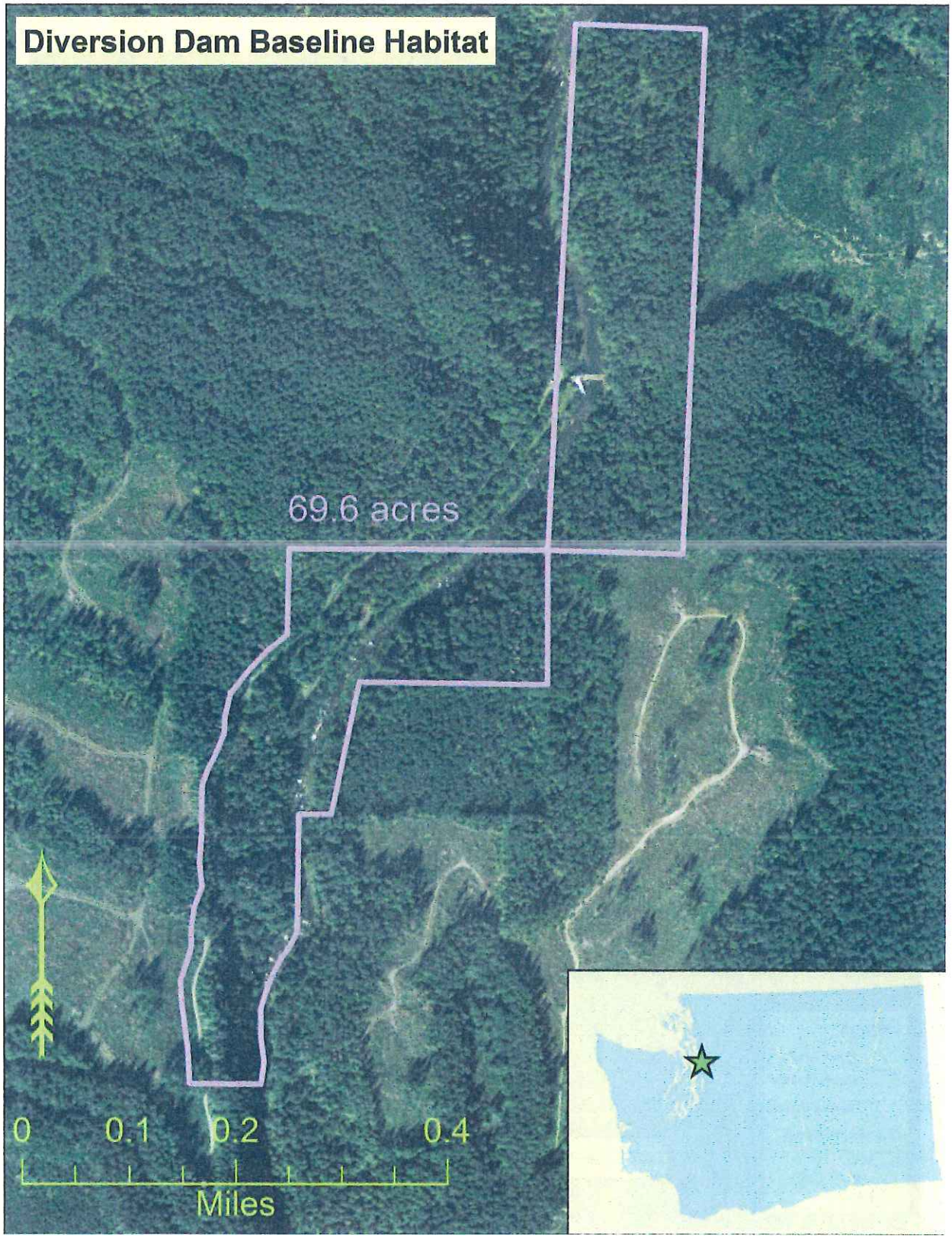


Figure 5. Map D




Diversion Dam Baseline Habitat
69.6 acres
0
0.1
0.2
0.4
Miles

Appendix D

List of Preparers, Contributors, and Advisors

This document was developed and prepared by Mark Hitchcock, Fairweather Forestry, under the direction and guidance of the City of Everett, the U.S. Fish and Wildlife Service, the Washington Department of Natural Resources, and the Washington Department of Fish and Wildlife. The following individuals contributed to the preparation of this SHA/CHEA.

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