Northwest Training Range Complex Consultation History and Proposed Action

The Northwest Training Range Complex (NWTRC) Biological Evaluation (BE) prepared by the Navy in 2008 and the USFWS Biological Opinion (BiOp) prepared in 2010, analyzed a number of Navy training activities including Electronic Warfare (EW) training (referred to as Electronic Combat [EC] in previous documents). The purpose of EW is to deny an enemy the advantage of the electromagnetic spectrum such as communication systems, navigation systems, and defense.

Effective EW training requires sources of electromagnetic energy that simulate systems operated by enemy combatants. These systems typically consist of search or targeting radar systems that transmit energy within identifiable and recognizable frequencies. These frequencies can be simulated by fixed and mobile EW emitter sources.

The 2008 NWRTC BE analyzed the concept of a fixed emitter potentially placed on the Olympic Peninsula to enhance the electronic combat training. The training activities associated with this enhancement feature were also analyzed. Since the issuance of the BiOP, the Navy has identified the proposed location of the fixed emitter. It was also determined that previously unanalyzed components of EW training would be necessary to fully meet the Navy's requirements. Specifically, the Navy proposes the following activities to be conducted at the specified locations:

1. Installation and operation of a fixed emitter (Mobile Remote Emitter Simulator [MRES]) at the Naval Station Everett Annex Pacific Beach, Washington (Figure 1), to include renovation of Building 104

2. Installation and operation of communication equipment on an existing tower in the Olympic Military Operations Areas (MOA) at Octopus Mountain (Figure 1)

3. Operation of Mobile Electronic Warfare Training System (MEWTS) vehicles in the Olympic Peninsula on U.S. Forest Service (USFS) and Washington State Department of Natural Resources (WSDNR) roads to facilitate training in the Olympic MOA and offshore Warning Area (W)-237 (Figure 2)

4. Operation of MEWTS mobile emitters on USFS roads to facilitate training within Okanogan and Roosevelt MOAs (Figure 3)

At Naval Station Everett Annex in Pacific Beach (PACBEACH), the Navy proposes the install the fixed emitter previously analyzed during the NWRTC consultation. The emitter would be placed on a 40 foot tower that would be constructed onsite in a previously disturbed area immediately adjacent to Building 104 on the facility. Modifications will also be made to the building in order to provide a garage area for housing the mobile emitters.

To train Navy personnel in locating EW sources, it is important that the EW emitters have some degree of mobility. Mobile emitters consist of a utility truck (Ford F-550 pickup) modified with

an emitter enclosure. In order to power the mobile emitters, 10 kilowatt (kW) generators will be used which are housed within the mobile emitter unit. For the Olympic MOA, three mobile emitters would be driven to the sites each day of training; rarely would all three mobile emitters be used simultaneously. Over the course of the year, the mobile emitters would be driven out to the sites approximately 260 times. Vehicles housing the emitters would park in existing road turn-outs during use. Emitters would only be energized for the actual training events, which last on average 75-120 minutes per event. An average of six events would occur per day for a total of 8-16 hours. The mobile emitters would be on site only for the duration needed to support the training events. After completion of the training events, the mobile emitters would return to PACBEACH.

The Roosevelt and Okanogan MOAs, would use the same training configuration described above for the Olympic MOA. Three mobile emitters would be driven to sites each day of training. The mobile emitters used here would be a separate set of vehicles stationed at Naval Air Station Whidbey Island (NASWI). All mobile emitters would be deployed on established roads during accessible conditions. If road conditions such as snow prevent vehicle access, one of the alternate sites would be used. No snow plowing or road clearing would occur. Vehicles housing the emitters would be parked in existing road turn-outs during operation and return to NASWI upon completion of the training event.

In order to aid in communications during training, a transmitter consisting of an antenna would be installed on an existing communications tower at Octopus Mountain. The tower is located on WDNR land in a remote area of Jefferson County (lat. 47°44’56.33” N, long. 124°10’41.91” W). This project component would have no effect on listed species.

The types of training and training activities associated with electronic warfare will remain the same as those assessed in the NWTRC BE and are not proposed to change. Therefore, the Proposed Action does not propose training activities that differ in scope, nature, or location from those analyzed in the NWTRC BE/USFWS BiOp 2010.

Project Location and Action Area

The Pacific Northwest EW range will be located on Navy land and USFS and WDNR logging roads in the Olympic Peninsula and in the north-central portion of Washington State (Figure 1). The Olympic Peninsula sites are beneath the Olympic MOA (Figure 2). The mobile emitter sites would be located on USFS or WDNR land. Additional mobile emitter sites are proposed in the Okanogan and Colville National Forests in north-central Washington State beneath the Okanogan and Roosevelt MOAs (Figure 3).

The Proposed Action will occur within the area previously described in the NWTRC BE. The extent of the any potential effects of the action will not exceed the area previously described and defined as the Action Area during the ESA consultation. For the purposes of evaluating whether additional effects would alter the Navy’s previous effect determinations for listed species, the analysis presented in this letter examines potential effects to species within specific portions of the previously defined Action Area:

- For the PACBEACH Annex site, projects effects are analyzed
    - to the extent of which noise levels are expected to be above ambient during operation of emitter and during construction of the tower and remodeling of Building 104, and
    - where electromagnetic radiation exists due to operation of emitters.

- For each mobile emitter site, potential project effects were analyzed
    - to the extent of which noise levels are expected to be above ambient during operation of the emitters,
    - to the extent of which visual disturbance to listed species could occur, and
    - where electromagnetic radiation exists due to operation of the emitters.

Figure 1: Location of Proposed Action

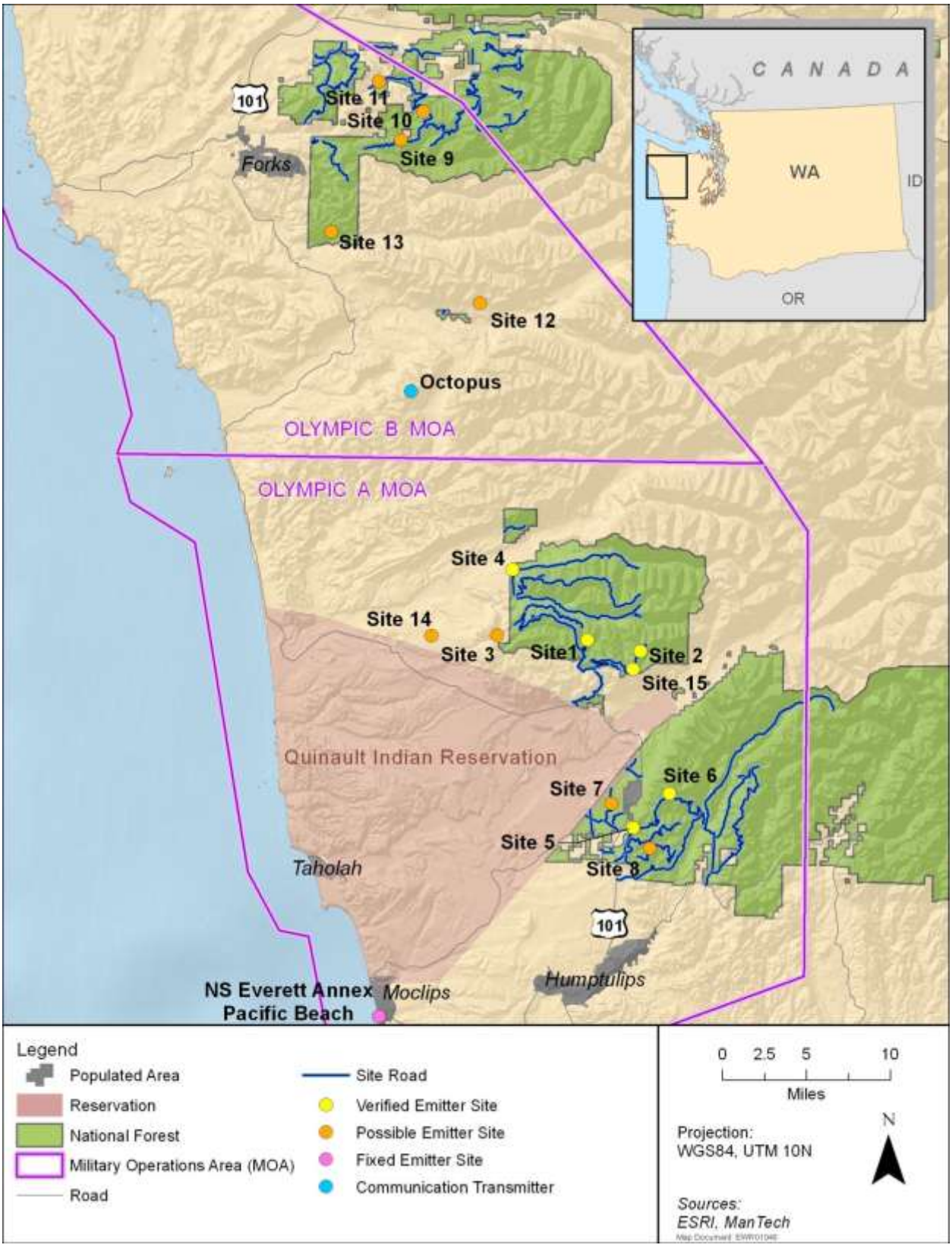

Figure 2: Proposed Emitter Sites in the Olympic Military Operations Area

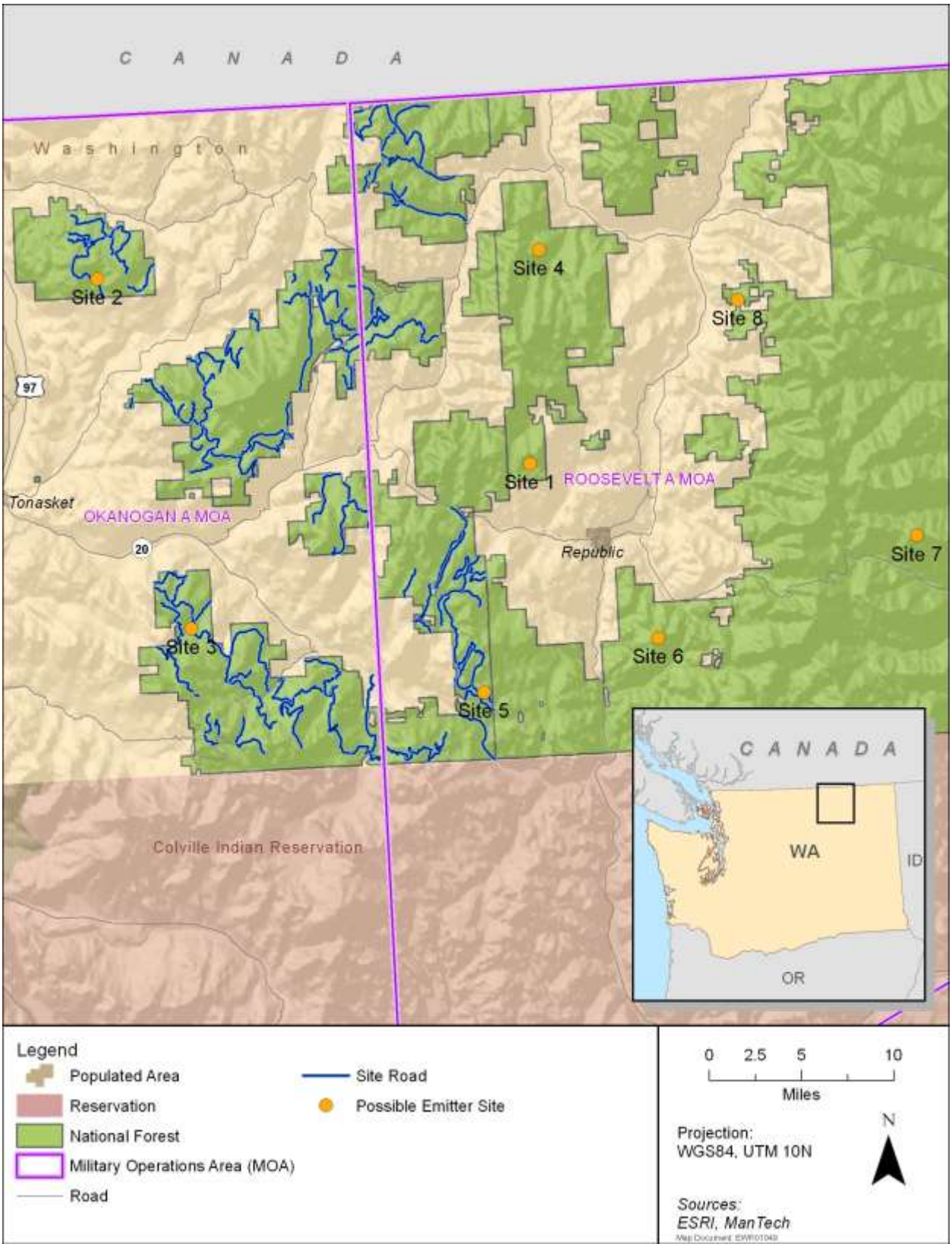

Figure 3: Proposed Mobile Emitter Sites in the Roosevelt and Okanogan Military

Operations Areas

ESA Listed Species and Critical Habitat

A detailed description of the existing environmental baseline conditions and ESA listed species potentially present in the Action Area can be found in the NWTRC documents. Species potentially present within the proposed EW range include the following:

Northern spotted owl (*Strix occidentalis caurina*),
Marbled murrelet (*Brachyramphus marmoratus*),
Grizzly bear (*Ursus horribilis,)*,
Canada lynx (*Lynx canadensis*),

Additionally, critical habitat has been designated for the marbled murrelets and the spotted owl within the Olympic MOA portion of the Action Area. Mobile emitter sites within the Okanagan and Roosevelt MOAs Action Area are not within designated critical habitat for any species. ESA listed species and their critical habitat designations are shown in the Table 1 below.

Table 1: Federally Listed Species and Critical Habitat within the Action Area

Species	Scientific Name	Status	Critical Habitat
Northern spotted owl	*Strix occidentalis caurina*	Threatened	Designated, Occurs within Olympic Peninsula project sites
Marbled murrelet	*Brachyramphus marmoratus*	Threatened	Designated, Occurs within Olympic Peninsula project sites
Grizzly bear	*Ursus horribilis*	Threatened	Not Designated
Canada lynx	*Lynx canadensis*	Threatened	Not Designated within Action Area

Northern spotted owl
The distribution of the northern spotted owl (NSO) includes southwestern British Columbia, western Washington and Oregon, and northwestern California. They generally inhabit older forested habitats that are characterized by dense canopy closure because they contain the structural characteristics required for nesting, roosting, and foraging. Although they are known to nest, roost and feed in a wide variety of habitats, northern spotted owls prefer a multi-layered, multi-species canopy with moderate to high canopy closure. Typically, forests do not attain these characteristics until they are at least 150 to 200 years old (Oregon Fish and Wildlife Office 2012). Dispersal habitat that supports movements between larger habitat patches that provide nesting, roosting, and foraging habitats for the NSO is also important. At a minimum, it must consist of stands with adequate tree size and canopy cover to provide protection from avian predators and at least minimal foraging opportunities. The two most important limiting factors

affecting spotted owls in Washington are habitat loss as well as competition with barred owls (Courtney et al. 2004).

In Washington, the NSO is found throughout much of the Olympic Peninsula, on both slopes of the Cascade Range and, rarely, in remnant patches of mature or structurally complex forest in the Puget Trough and southwestern Washington. According to WDFW (2013a) there were 1,070 territorial sites known to have been occupied by spotted owls in at least one year between 1976 and 2011, however many of these sites are no longer assumed to be occupied. The absolute size of the spotted owl population in Washington is not known, but populations are thought to be declining (WDFW 2013a).

Spotted owls are particularly rare in the Cascade Mountains of northern Washington, and the Coast Ranges of southwest Washington and northwest Oregon. However, a large and virtually isolated population persists on the Olympic Peninsula. This population of northern spotted owl may be found throughout the Olympic Peninsula portion of the project area (Oregon Fish and Wildlife Office 2012). In the Olympic National Forest, there are approximately 259,000 to 285,000 acres of spotted owl habitat (USFWS 2013a). A total of 114 spotted owl activity centers (i.e., sites with pairs or resident single spotted owls) are located within the administrative boundary of the ONF. This, includes 65 sites that were considered historical or vacant and 49 sites that were considered occupied as of 2008 (USFWS 2013a)

NSO Critical Habitat

Critical habitat was designated for the NSO in 1992 (57 FR 1796) which identified the physical and biological habitat features essential to the conservation of the species, or primary constituent elements (PCEs). The PCEs consist of nesting, roosting, foraging, and dispersal habitats. A final rule revising critical habitat was published in December 2012. Critical Habitat within the Olympic MOA is shown in Figure 4. NSO critical habitat has not been designated within the Okanogan and Roosevelt MOA emitter site Action Areas.

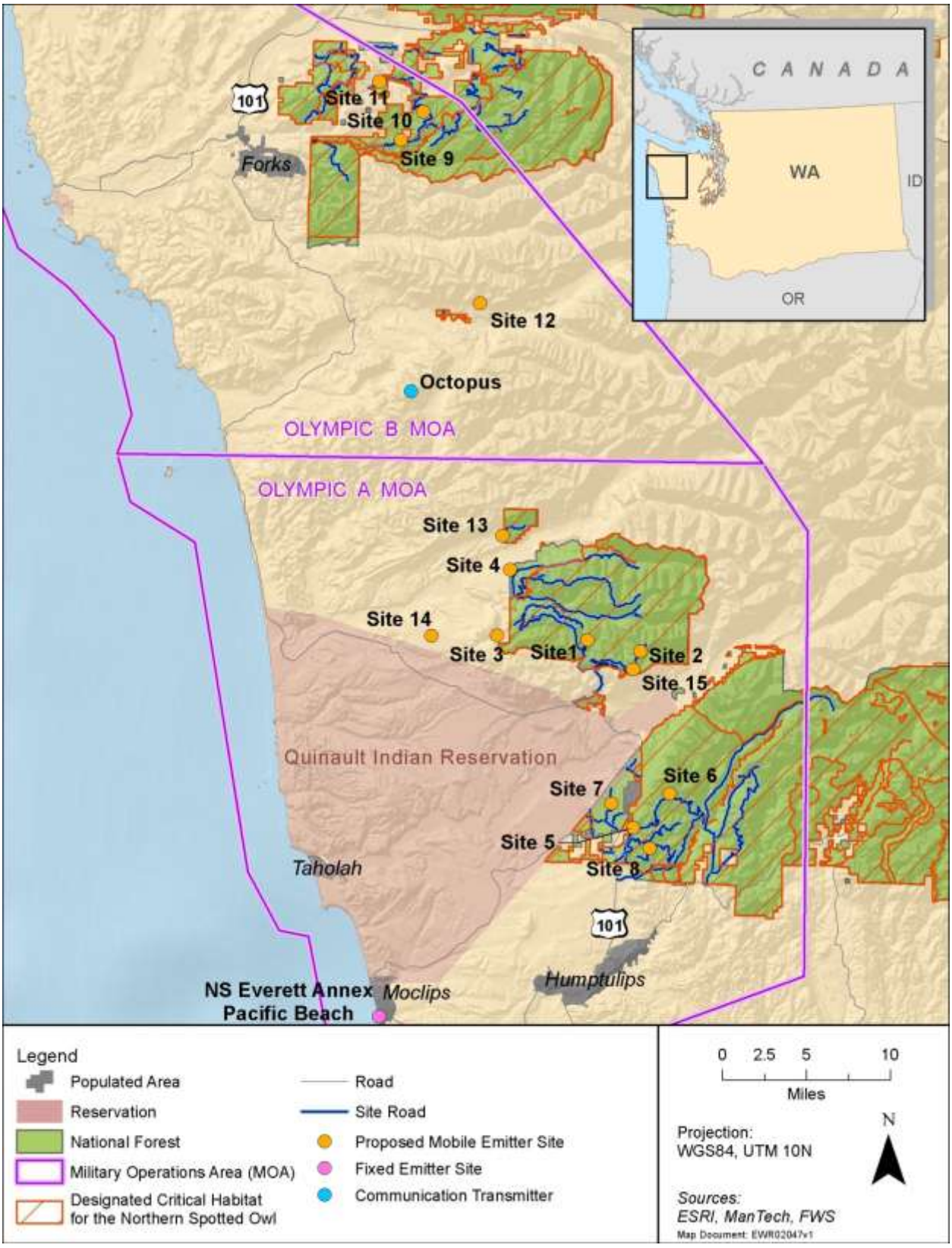

Figure 4: Northern Spotted Owl Critical Habitat within the Olympic MOA

Marbled murrelet

The marbled murrelet occurs from the Aleutian archipelago across southern Alaska to Santa Cruz County in central California. Marbled murrelets spend most of their lives in the marine environment foraging on nearshore forage fish such as Pacific herring, northern anchovy, Pacific sand lance, and capelin. Marbled murrelets nest inland in old-growth forests characterized by large trees, multiple canopy layers, and moderate to high canopy closure. These forests are located close enough to the marine environment for the birds to fly to and from nest sites. Murrelet nest trees in Washington occur within 55 mi (88.5 km) of marine waters. The nesting season in Washington is April 1 to September 23 (USFWS 2012).

Marbled murrelet populations have experienced significant population declines in the Pacific Northwest primarily due to nesting habitat loss, habitat fragmentation, and predation (USFWS 2010). Additional potential threats have also been identified, such as gillnet bycatch, abandoned fishing gear, harmful algal blooms, and observed changes in the quality and quantity of the available prey species (USFWS 2010b). Surveys during most of the breeding season suggest that for all of Washington, there was an annual rate of decline in the density of at-sea foraging birds of 4.07% between 2001-2012 (Lance et al. 2013).

The proposed emitter sites within the Okanogan and Colville national forests are outside the range of the marbled murrelet. Marbled murrelets do, however occur within the Olympic MOA Action Area. Of the 632,400 acres of habitat within the Olympic National Forest, 259,731 acres are estimated to be suitable nesting habitat for the marbled murrelet. Known marbled murrelet occurrence within the Action Area (WDFW 2013b) is shown in in Figure 5.

Marbled Murrelet Critical Habitat

Marbled murrelet critical habitat has been designated within the Olympic peninsula Action Area (Figure 5). No critical habitat occurs within the action area of the Okanogan and Roosevelt MOA emitter sites.

Critical habitat was designated in 1996 (61 FR 26256) and was revised in October 2011 (76 FR 61599). The USFWS determined that the PCEs associated with the terrestrial environment that support nesting, roosting, and other normal behaviors are essential to the conservation of the marbled murrelets. These are identified as (1) individual trees with potential nesting platforms, and (2) forested areas within 0.8 kilometers (0.5 miles) of individual trees with potential nesting platforms that have a canopy height of at least one-half the site-potential tree height (61 FR 26256).

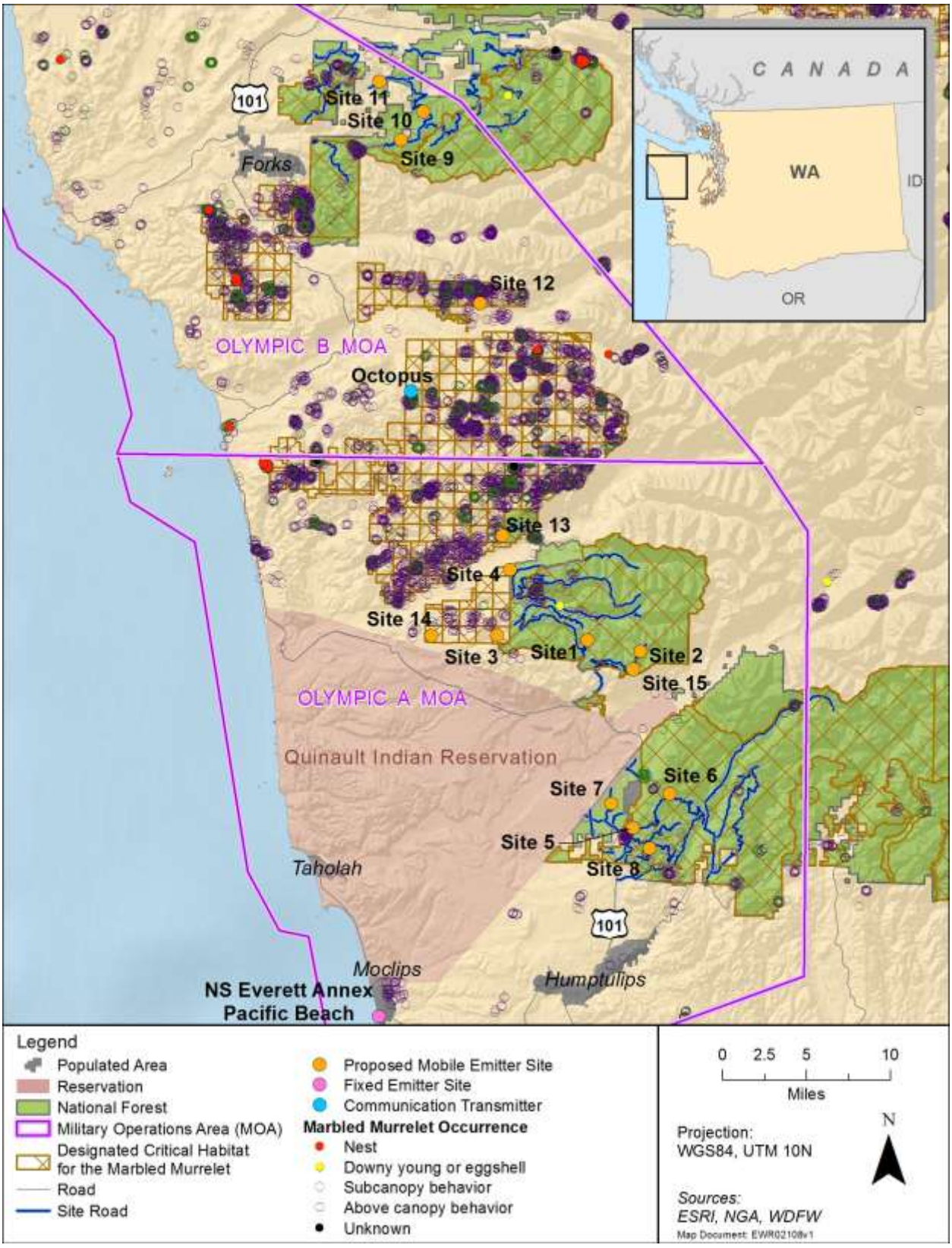

Figure 5: Marbled Murrelet Critical Habitat and Occurrence within the Olympic MOA

Grizzly bear

Grizzly bears historically occupied an area extending from central Mexico to the Arctic Ocean and from the Pacific Ocean east to the Mississippi River. Their current range includes Alaska, western and northern Canada, and the northern Rocky Mountains through north-central and northeast Washington, and northern Idaho (USFWS 2007). The range and numbers of grizzlies were reduced to less than 2 percent of their historical levels by the 1930s, approximately 125 years after first contact with European settlers. Of 37 grizzly populations present in 1922, only five remained by 1975 (Servheen 1999). The decreases in historical range, the isolated nature of existing populations, the building of roads and trails in formerly secure grizzly bear habitat, and livestock practices on National Forests contributed to the decline in grizzly bear populations (USFWS 2011).

The grizzly bear occurs in many diverse habitats. Their home ranges exhibit variation among individuals, areas, and seasons. They occur in riverine and riparian habitats, in alpine, conifer, hardwood, and mixed forests; and in grassland, scrubland, and tundra ecosystems. Historically they were found on open prairies, brush lands, and semi-desert areas; however, current populations are found mostly in arctic tundra, alpine tundra, and subalpine mountain forests. Most populations require huge areas of suitable habitat and are common only where food is abundant and concentrated (e.g., salmon runs, caribou calving grounds) (NatureServe 2013). In general, home range sizes of females are less variable than those of males (LeFranc et al. 1987) with females with cubs-of-the-year having the smallest home range sizes (Blanchard and Knight 1991).

Historically, grizzly bears occurred in most of Washington, , except on the Olympic Peninsula and the lowlands below the west slope of the Cascades (Almack et al. 1993). Today, grizzly bears in Washington are thought to occur in two populations within the Selkirk Mountains and the North Cascades Ecosystems (WDFW 2013a). Proctor et al. (2012) estimated a population size of 88 grizzly bears in the Selkirk Ecosystem (30 in the U.S., 58 in Canada) using DNA-based population surveys and other data (USFWS 2011). Wakkinen and Kasworm (2004) estimated this population is slowly increasing at a rate of 1.9% annually (95% CI=0.922-1.098).

Almack et al. (1993) concluded that adequate habitat exists in the North Cascades of Washington to support a population of grizzly bears. The population in the North Cascades Ecosystem was estimated to be fewer than 20 animals (USFWS 2011). Romain-Bondi et al. (2004) estimated grizzly bear density in the North Cascades Ecosystem at 0.15 bears/100 km2, with a mean population estimate of 6 bears. The population in adjacent B.C. is estimated to be less than 25 grizzly bears and populations to the east and west of the Cascades in Canada are considered extirpated (North Cascades Grizzly Bear Recovery Team 2004).

No designated grizzly bear critical habitat occurs in the project area. However, there is a recovery area designated near the North-central to northeastern Washington portion of the project area as shown below in Figure 6. Figure 6 also shows observations of the grizzly bears in relation to the mobile emitter sites.

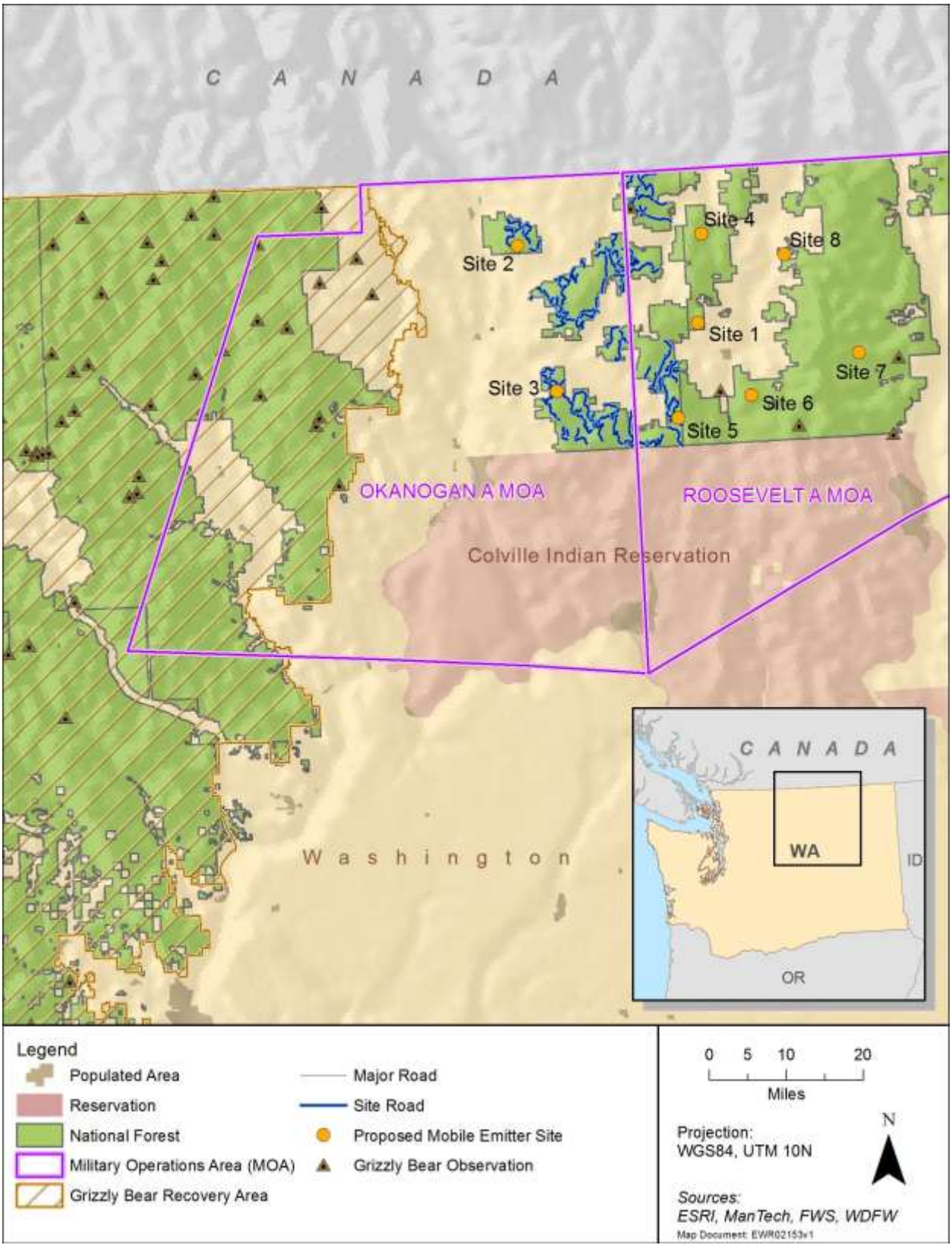

Figure 6. Grizzly Bear Recovery Area near the Proposed Action Area

Canada lynx

Canada lynx occur in the northern U.S states and Canada as well as in Alaska. The species is strongly associated with the expansive, continuous boreal forests, cold, snowy winters and a high density of snowshoe hares *(Lepus americanus)*, the primary prey of lynx (USFWS 2013b). Threats to the lynx in the conterminous United States population include human alteration of forests, low numbers as a result of past overexploitation, expansion of the range of competitors, and elevated levels of human access into lynx habitat (USFWS 2013b). Lynx occur in small numbers in Okanogan County and occur intermittently in the other northeastern Washington counties (WDFW 2013b). Koehler et al. (2008) used snow-tracking data to develop a model of lynx–habitat relationships that could be used to assess the potential distribution of lynx in Washington. They estimated about 3,800 km2 of suitable habitat, indicating that Washington could support up to 87 lynx, but they believed this was an overestimate because it was based on an area where hare densities were high (WDFW 2013a).

In Washington, lynx are found in high-elevation forests of Okanogan, Chelan, Ferry, Stevens, and Pend Oreille counties. Lynx habitat in Washington generally consists of Engelman spruce, subalpine fir, and lodgepole pine (seral species) stands above approximately 4000 feet in elevation (Koehler 2008). In addition to snowshoe hares, lynx in Washington may prey on a wider diversity of species than northern populations because of lower average hare densities and differences in small mammal communities (Ruediger et al. 2000). In areas characterized by patchy distribution of lynx habitat, lynx may prey opportunistically on other species that occur in adjacent habitats, potentially including white-tailed jackrabbit (*Lepus townsendii*), black-tailed jackrabbit (*Lepus californicus*), sage grouse (*Centrocercus urophasianus*), and Columbian sharp-tailed grouse (*Tympanichus phasianellus*) (Quinn and Parker 1987 and Lewis and Wenger 1998, as cited in USFWS 2013b).

The Lynx Conservation Assessment and Strategy (LCAS) (Ruediger et al. 2000) was developed to provide a consistent and effective approach to conserve Canada lynx on federal lands in the conterminous United States. The USFS, U.S. Bureau of Land Management, and USFWS initiated the Lynx Conservation Strategy Action Plan in spring of 1998. The conservation measures presented in the LCAS have been used as a tool for analyzing effects of planned and on-going projects on lynx and lynx habitat. The LCAS recommended that Lynx Analysis Units (LAUs) be identified for all areas with lynx habitat. LAUs are not intended to depict actual lynx home ranges; rather, it provides an analysis of units at the appropriate scale with which to analyze potential direct and indirect effects of projects or activities on individual lynx and monitor habitat changes (Ruediger et al. 2000). None of the proposed mobile emitter sites occur within the LAUs.

Critical Habitat was designated in 2006 (71 FR 66008) and amended in 2009 (FR 74 8616). An additional amendment was proposed in September 2013 (78 FR 59429), however the proposed revision does not include changes to critical habitat in Washington. Designated critical habitat for the Canada lynx does not overlap with the proposed emitter sites.

ESA Effects Analysis

The Navy has determined that the activities associated with the proposed EW range would result in an effect determination of "may affect, not likely to adversely affect," for all ESA listed species potentially present within the Action Area. The analysis examined elements of the action that could potentially affect ESA species, specifically noise and electromagnetic radiation.

Noise

Federally listed species within the project areas most likely would not be disturbed by noise associated with the proposed activities and affects are not expected to result in take for the following reasons:

Vehicle Noise: Vehicles would only be in operation during transits to and from the emitter sites. Vehicle noise would only occur on established public roads and forestry roads which are already subjected to vehicle noise. The transits by a mobile emitter on an established forestry road would not generate noise levels that would be expected to exceed background levels. Therefore, vehicle noise from the proposed project is unlikely to affect ESA listed species within the Action Area.

Generator/Mobile emitter Noise: At the fixed emitter site at PACBEACH, the emitter would be operated by power supplied from Building 104. A generator would only be used as a source of back-up power and noise resulting from generator use would be infrequent. The specifications of the backup generator at Building 104 state that it shall not generate acoustical noise that exceeds 80 dBA at a distance 6 ft. from the unit. Subsequently, the sound level of this generator at or greater than 500 ft. (152.4 m) would be between 38-44 dBA. Suburban or residential areas have background levels around 45 to 50 dBA (EPA 1978), while rural areas are the quietest with sound levels of 35 to 40 dBA (EPA 1978). Because the building is adjacent to the town of Pacific Beach, ambient sound likely ranges between 40-50 dBA. Therefore, generator noise contribution to the overall noise level would be negligible. Additionally, considering the predicted infrequent utilization of this generator (back-up utilization only), the fixed nature of the generator on Building 104, and that Building 104 is already in a disturbed habitat with the area physically separated from adjacent habitat by existing development and the town of Pacific Beach, ESA listed species would not be impacted by this stationary generator's noise.

At the mobile emitter sites, noise from generators would likely not exceed ambient noise conditions. Ambient sound levels can vary depending site specific conditions and multiple factors. Ambient sound in a forested environment has previously been estimated at 35 dBA on San Juan Islands with regular noise intrusions from traffic and aircraft over flights ranging 45-72 dBA (WSDOT 1994). A study on the Mt. Baker-Snoqualmie National Forest listed forested ambient levels between 52 and 60 dBA (USFS 1996 as cited in WSDOT 2013). The USFWS has previously estimated an ambient sound level of 40 dBA for undisturbed forested areas in Olympic National Forest (USFWS 2013).

The generators selected to power the mobile emitters have specifications that state they meet National Park Service sound level requirements (60 dBA at 50 ft.) for National Park use. However, the generators utilized would be built into the vehicles and would be encased in steel and have mufflers on the exhaust, both of which offer an increased level of sound attenuation. Subsequently, the predicted sound level of the encased generators is 42 dBA at 50 ft, and would only exceed ambient sound levels of 40 dBA for approximately 60 ft[1]. Sound levels within this distance may be detectable to marbled murrelets and spotted owls, but the sound levels they could be exposed to are not anticipated to cause more than an alert reaction such as head turning. Noise levels would not reach levels that could cause harassment or injury (WSDOT 2013).
Construction Noise: During the remodel of building 104 at the PACBEACH annex, construction noise would be expected to be above background levels. As previously stated, an ambient sound level of 45 dBA was assumed for the calculations.

Equipment used during the building remodel would be standard equipment generally used during construction such as dump trucks, air compressors and various power tools. To estimate construction noise, equipment generating the loudest noise outdoors was used in order to be conservative. Assuming operation of equipment with noise levels similar to the noise level of a dump truck (76 dBA), the distance at which construction noise attenuate to background would be 1,774 ft. (541 m) or about 0.34 miles[2]. Sound levels generated by construction would fluctuate and increased levels of noise would only occur intermittently.

Electromagnetic Radiation

As previously stated, the emitters would be energized for the actual training events only, which last on average 75–120 minutes per event. Electromagnetic radiation is a form of environmental disturbance that may impact wildlife in various ways depending on type of radiation, duration of exposure, and the species of the receiving animal. Effects on birds may include reduced nesting success (Fernie and Reynolds 2005, Balmori 2009) and various behavioral and physiological responses to electromagnetic fields such as disruption of normal sleep-wake cycles through interference with pineal gland and hormonal imbalance (Fernie et al. 2000, Fernie and Bird 2001). Salford et al. (2003) and Marks et al. (1995) report various effects on mammals from electromagnetic exposure, including changes in alarm and aversion behavior, deterioration of health, reproductive problems, and changes in normal sleep wake patterns. Nishimura et al.

[1] Calculated using WSDOT guidance (WSDOT 2013) which states the following equation should be used:
$D = Do * 10^{((\text{Construction Noise} - \text{Ambient Sound Level in dBA})/\alpha)}$ Where D = the distance from the noise source, Do = the reference measurement distance, α = 25 for soft ground and 20 for hard ground. For point source noise, a spherical spreading loss model is used. These alpha (α) values assume a 7.5 dBA reduction per doubling distance over soft ground and a 6.0 dBA reduction per doubling distance over hard ground. To determine extent of construction noise: $\mathbf{D=50*10^{((42-40)/25))}=60.11\ ft.}$ Where Construction noise = 42 dBA, Ambient =40 dBA, and α = 25 for soft site.

[2] Calculated using WSDOT 2013: $D = Do * 10^{((\text{Construction Noise} - \text{Ambient Sound Level in dBA})/\alpha)}$
Where D = the distance from the noise source, Do = the reference measurement distance, α = 25 for soft ground and 20 for hard ground. For point source noise, a spherical spreading loss model is used. These alpha (α) values assume a 7.5 dBA reduction per doubling distance over soft ground and a 6.0 dBA reduction per doubling distance over hard ground. To determine extent of construction noise: $\mathbf{D=50*10^{((76-45)/20))}=1774\ ft.}$ Where Construction noise = 76 dBA, Ambient =45 dBA, and α = 20 for hard site.

(2010) reported response in lizards to low-frequency electromagnetic fields. Experiments and field observations in these studies were based on continual and long-duration exposure.

Two types of mobile emitters could be used. The first operates between 6 and 8 GHz with an approximate peak transmit power of 100 kW. The second operates between 4 and 8 GHz with an approximate peak transmit power of 3 kW. At these operational settings, it is not expected that wildlife, notably birds, would be impacted by the radiated energy. Bruderer et al. (1999) investigated flight patterns of birds crossing the beam of a 9 GHz tracking radar, which had an approximate peak transmit power of 150 kW. Bruderer tracked individual birds using a constant radar source while switching the radar source on and off, and while turning on a light source that was pointed at the flying bird. The study shows that the beam of a strong searchlight influenced the flight behavior of migrating birds, whereas the beam of X-band tracking radar did not. Additionally, opportunistic observations on rabbits and chickens in close proximity to the tracking radar indicated no behavioral responses to the radar emissions.

The any potential effects from electromagnetic radiation are expected to be minimal and temporary based the following:

(1) Wildlife species will not be exposed to constant radiation. No area of the EW project area is continuously saturated with electromagnetic fields because the emitters are mobile and the sites used rotate depending on factors such as weather and training needs. The stationary emitter is also not constantly running.

(2) Beams of electromagnetic radiation (e.g., from EW training) may expose birds in flight to increased levels of radiation; however, the birds in flight would be moving through the area and potentially out of the area of the main beam, once again keeping them from continuous or long-duration exposure (especially since non-soaring birds have relatively quick airspeeds).

(3) The beam pattern emitted is directional, which minimizes the area exposed to radiation. In order for the signal to be properly emitted for training, a clear path in the direction of the aircraft is needed. Beams would not be directed over the forest floor where terrestrial species would occur or the forest canopy where nesting birds may be present. Rather the beam associated with the emitter would be pointed into the sky where a directional path is clear. Pullout sites were selected based on low levels of vegetation (clear-cuts) or areas overlooking cliff sides in order to provide a clear path.

ESA Effect Determinations

Northern spotted owl
The Navy has determined that the proposed action “may affect” the NSO because project activities occur within NSO habitat where owls may be foraging, nesting and dispersing. NSO

may be disturbed by project generated noise or potentially exposed to electromagnetic radiation. However, adverse effects are not expected because:

- Sound levels resulting from project activities are not expected to reach levels that would cause disturbance, harassment or injury to foraging, nesting, roosting or dispersing owls.
- NSO are not expected to nest near roads however NSOs potentially nesting or roosting in these areas are frequently exposed to road traffic noise and are therefore unlikely to be disrupted by presence of a parked vehicle. Presence of people is not expected to result in disturbance to spotted owls since emitter operators would likely remain in the vehicle for the majority, if not all of the training event. Additionally, nest sites are usually located high enough in the forest canopy that spotted owls rarely flush even when someone walks directly under a roost or nest site (USFWS 2003 as cited in USFWS 2013a).
- Effects to NSO resulting from electromagnetic radiation are not expected since transmitters are directionally pointed at open sky areas where owls would not be roosting or nesting.
- There are multiple mobile emitter sites, with only three emitters in the field at one time and rarely would all three mobile emitters be used simultaneously. Given the infrequency of use at each site and that emitters would only operate during actual training events lasting 75-120 minutes per event, potential for exposure is low. Additionally, NSO hunt at night and although training events could potentially occur during nighttime hours, most events would occur during daylight hours thus further reducing potential for project effects to foraging owls.
- Although it is unlikely, NSO could potentially pass through electromagnetic beams while foraging or dispersing through the area. However, owls would not remain in the beam and the duration of any exposure would be only be moments and would not result in measurable effects.

Therefore, the Navy's effect determination for the NSO within the Action Area is **may affect, not likely to adversely affect.**

Northern spotted owl Critical Habitat
The proposed action will occur in NSO designated critical habitat and therefore may be affected. The 1992 NSO critical habitat rule (57 FR 1796) identified the PCEs as the fundamental scale of analysis at which the ''evaluation of actions that may affect critical habitat for the northern spotted owl'' should occur. Those elements included nesting, roosting, foraging and dispersal habitats. Adverse effects PCEs are not expected because:

- Trees, snags, and other vegetation will not be altered. No removal, trimming, pruning, or any modification will occur therefore nesting and roosting habitat will remain unaffected. Similarly, vegetation that provides cover for foraging and dispersing owls would also be unaffected.
- Activities would occur in already disturbed areas (establish roads and turnouts) and would not degrade foraging areas or prey species or prevent corridors for movement and dispersal.
- Noise would likely exceed background levels for only a short distance and likely would

be undetectable to NSO. Therefore, noise resulting from the proposed action would not measurably reduce the availability of the habitat for nesting, roosting, and foraging behaviors or dispersal of NSO.

The Navy has determined that activities associated with the proposed action are unlikely to affect NSO critical habitat PCEs or the ability or the PCEs to support the species. Therefore, the effect determination for the proposed action is **may affect, not likely to adversely affect** for NSO critical habitat within the Action Area.

Marbled murrelet

The proposed action may affect marbled murrelet because they are known to occur within the Action Area. Marbled murrelets in the area may be nesting or in transit between nesting locations and marine foraging habitats. They may be disturbed by project generated noise or potentially exposed to electromagnetic radiation. However, adverse effects are not expected because:

- Marbled murrelets are not expected to nest near roads or in areas that do not provide sufficient cover from predators. The emitter sites were selected based on the access to unobstructed sky. It is unlikely these areas would provide murrelets with the habitat conditions required for nesting.
- Sound levels resulting from project activities are not expected to reach levels that would cause disturbance, harassment or injury to nesting marbled murrelets.
- Murrelets potentially nesting in areas that are frequently exposed to road traffic noise are likely to habituate to the normal range of sounds in these areas. Therefore, it is unlikely that the presence of a single parked vehicle would disturb murrelets nesting within the visual line of site of the mobile emitter. Presence of people is also not expected to result in disturbance since emitter operators would likely remain in the vehicle for the majority, if not all, of the training event.
- Mobile emitter operators will not leave garbage, food scrapes or feed any wildlife. Therefore, corvid concentrations near the emitter sites will not be increased and the project would not be expected to result in increased predation of marbled murrelets.
- Effects to nesting marbled murrelets from electromagnetic radiation are not expected since transmitters are directionally pointed at open sky areas where murrelets would not nest.
- There are multiple mobile emitter sites, with only three emitters in the field at one time and rarely would all three mobile emitters be used simultaneously. Given the infrequency of use at each site and that emitters would only operate during actual training events lasting 75-120 minutes per event, potential exposure of murrelets during flight is low.
- Although it is unlikely, marbled murrelets could potentially pass through electromagnetic beams while transiting through the area. However, murrelets would not remain in the beam and the duration of any exposure would be only be moments and would not result in measurable effects.

Marbled Murrelet Critical Habitat

The proposed action will occur in marbled murrelet designated critical habitat and therefore may be affected. Identified PCEs include as (1) individual trees with potential nesting platforms, and (2) forested areas within 0.8 kilometers (0.5 miles) of individual trees with potential nesting

platforms, and with a canopy height of at least one-half the site-potential tree height (61 FR 26256). Adverse effects PCEs are not expected because:

- Trees, snags, and other vegetation will not be altered. No removal, trimming, pruning, or any modification will occur therefore nesting habitat will remain unaffected.
- Activities would occur in already disturbed areas (establish roads and turnouts) and would not degrade.
- Noise would likely exceed background levels for only a short distance and likely would be undetectable to marbled murrelets. Therefore, the proposed action would not reduce the availability of the habitat for nesting and roosting due to noise effects.

The Navy has determined that activities associated with the proposed action are unlikely to affect NSO critical habitat PCEs or the ability or the PCEs to support the species. Therefore, the effect determination for the proposed action is **may affect, not likely to adversely affect** for marbled murrelet critical habitat within the Action Area.

Grizzly bear
The proposed action may affect the grizzly bear because the Okanagan and Roosevelt emitter sites occur within areas where the species could potentially be present. However, adverse effects are not expected because:

- Grizzly bear density in the Action Area is likely very low. The emitter sites are located along established roads where a grizzly bear would be unlikely to occur since these would not provide an abundant and concentrated source of food. Therefore, the probability of a grizzly bear occurring near the emitter sites during a training event is very low.
- If, in the very rare event, a grizzly bear were to be sighted during the project activities, the mobile emitter personnel would remain in the vehicle and would most likely leave the area, preventing disturbance to the bear as well as bear/human interactions.
- Bears unsighted within the vicinity of the mobile emitters would be unlikely to be disturbed by increased sound levels because noise produced by the generators powering the emitters is unlikely to exceed baseline conditions for more than 60 ft.
- Effects to grizzly bear resulting from electromagnetic radiation are discountable since transmitters are directionally pointed at open sky areas and not at the forest floor where a grizzly bear would occur.

Therefore, the Navy's effect determination for the grizzly bear within the Action Area is **may affect, not likely to adversely affect.**

Canada lynx
The proposed action may affect the Canada lynx because the Okanagan and Roosevelt emitter sites occur within areas where the species could potentially be present. However, adverse effects are not expected because:

- The mobile emitter sites are not located within the LAUs identified as containing suitable lynx habitat. Therefore, while lynx could potentially move through the area while dispersing, the habitat surrounding the mobile emitter sites is not suitable to support populations and potential occurrence would be a rare transitory movement by individual lynx, at most.
- Lynx occur in areas where deep snow is present during much of the year. No snow plowing of roads will occur under the proposed action and any area inaccessible due to snow would not be used, further reducing the probability that lynx would occur near emitters.
- Given the low probability of lynx occurrence in the area and the slow speed of vehicles traveling on unpaved roads to and from emitter sites, vehicle collisions with lynx would be extremely unlikely. Lynx would not be disturbed by a parked vehicle at a turn out along an existing road.
- Lynx potentially transiting through or foraging within vicinity of the mobile emitters would be unlikely to be disturbed by increased sound levels because noise produced by the generators powering the emitters is unlikely to exceed baseline conditions for more than 60 ft.
- Effects to lynx resulting from electromagnetic radiation are discountable since transmitters are directionally pointed at open sky areas and not at the forest floor where a lynx would occur.

Therefore, the Navy's effect determination for the Canada lynx within the Action Area is **may affect, not likely to adversely affect.**

Conclusion

FR 402.16 requires the federal agency to reinitiate formal ESA consultation if;

a) The amount or extent of incidental take is exceeded.

b) New information reveals effects of the agency action on listed species or designated critical habitat in a manner or to an extent not considered.

c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or

d) If a new species is listed or critical habitat designated that may be affected by the identified action**.**

Based upon the described changes to the proposed action, the Navy does not believe that the project has triggered a need for reinitiation of ESA consultation for the following reasons.

a) The additional project components do not change the amount or extent of incidental take allotted in the original Biological Opinion . b) No new information has been identified that reveals new adverse effects that were not analyzed in the Biological Opinion.

c) The additional project components occur within the original Action Area described in the Biological Opinion. The additional project components will not substantially change the forested or built environment that currently exists and was previously analyzed in the Biological Opinion. d) New species have not been listed and no new critical habitats designated within the Action Area.

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