



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

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IN REPLY REFER TO

1792/6711/5420 (ORC030)

DOI-BLM-OR-C030-2010-0005-EA

Spruce Reach House Environmental Assessment

March 8, 2013

Dear Concerned Citizen:

We have completed the Spruce Reach House Environmental Assessment (DOI-BLM-OR-C030-2010-0005-EA) and signed the Finding of No Significant Impact (FONSI). These documents contain analysis of the effects of constructing alternative bat habitat and gradually making the Spruce Reach house on Spruce Reach Island less hospitable to bats with the goal of eventual house removal. The Spruce Reach house project is consistent with the 1995 Coos Bay District Resource Management Plan as amended by the 2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines.

Sincerely,

/s/ A. Dennis Turowski

A. Dennis Turowski

Umpqua Field Manager



United States Department of the Interior

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FINDING OF NO SIGNIFICANT IMPACT

For the

Spruce Reach House Environmental Assessment

DOI-BLM-OR-C030-2010-0005-EA

I. Introduction

An Interdisciplinary Team has prepared an Environmental Assessment (EA) which contains analysis of removing the dilapidated Spruce Reach house. This EA is hereby incorporated by reference. This document contains a No Action Alternative and a Proposed Action Alternative. The No Action Alternative describes the effects of allowing the Spruce Reach house to deteriorate further and eventually collapse. The Proposed Action Alternative describes the effects of constructing alternative bat habitat on Spruce Reach Island by repurposing an unused horse barn within 350 feet of the Spruce Reach house, and gradually making the Spruce Reach house less hospitable to bats with the goal of eventual house removal. The Proposed Action Alternative also includes construction of additional alternative habitat structures on Spruce Reach Island or in the Dean Creek Elk Viewing Area. Spruce Reach Island is part of the Dean Creek Elk Viewing Area and the Spruce Reach house is approximately four miles east of Reedsport, Oregon in T. 21 S., R. 11 W., Section 33.

Removal of the Spruce Reach house was originally analyzed in the Environmental Assessment OR-125-96-14 as part of the *Dean Creek Elk Viewing Area 1998 Amendment to the 1993 Management Plan*. This current EA addresses new information regarding use of the structure by bats that was not available when the EA for the 1998 Amendment was completed. Additionally, the EA incorporates new information about the safety hazards of the house.

II. Background

This EA was developed under the management direction of the 1995 Coos Bay District Record of Decision and Resource Management Plan (1995 ROD/RMP). The analysis supporting this decision tiers to the *Final Coos Bay District Proposed Resource Management Plan/Final Environmental Impact Statement* (USDI BLM 1994). The 1995 Record of Decision is also supported by, and in conformance with, the *Final Supplemental Environmental Impact Statement (EIS) on Management of Habitat for Late-Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl (Northwest Forest Plan)* (USDA FS and USDI BLM 1994a) and its *Record of Decision* (USDA FS and USDI BLM 1994b) as supplemented and amended.

As stated in the Record of Decision for the Northwest Forest Plan, the Aquatic Conservation Strategy (ACS) was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems on public lands within the range of Pacific Ocean anadromy. Consistency of the Proposed Action Alternative with the ACS objectives is included in Chapters 3&4 of the EA (pp. 24-29).

III. Finding of No Significant Impact

Based on the EA effects analysis, I find that there would not be a significant impact on the quality of the human environment from the implementation of the Proposed Action Alternative. This finding and conclusion is based on my consideration of the Council of Environmental Quality's (CEQ) criteria for significance (40 CFR 1508.27), both with regard to context and intensity of the impacts described in the EA.

Context

The Proposed Action involves construction on one building and phased demolition of another within the O.H. Hinsdale Garden. The O.H. Hinsdale Garden is approximately 5 acres in size and is located next to the Umpqua River. Both buildings are unused and serve no administrative purpose. The barn is a contemporary structure relative to the Spruce Reach house, and it does not have relevance to the garden setting. The Spruce Reach house is not safe or suitable for human entry or use. The State Historic Preservation Office concurs with an earlier report commissioned by the Coos Bay District BLM that concluded the house is not eligible for nomination to the National Register of Historic Places. The Proposed Action also includes construction of a community bat roost or bat condo set apart from the barn, and one or more Oregon wedge style bat boxes.

Incidental observations and more formal protocol surveys have established that multiple species of bats are using the Spruce Reach house year-round for day, night, maternity, and winter roosting (EA pp. 14-15). It is grossly estimated that there are about 100 to 200 bats of multiple species residing in the existing house during the active bat season (spring and summer) (EA p. 7).

The seven species of bats that have used, are currently using, or potentially using the Spruce Reach house as habitat are found locally on the Coos Bay District (EA pp. 51-57), regionally in Oregon and Washington (EA pp. 59-65), and nationally in all or part of at least 12 states (EA pp. 51-57). Six of the seven species are considered multiple habitat species (as opposed to tree-roosting, cliff-roosting, or cave-roosting), and the lower Umpqua River and Smith River corridors contain bat habitat (trees, bridges, buildings) in close proximity to the Spruce Reach house (EA pp. 17-18, 66).

Intensity

Impacts that may be both beneficial and adverse (40 CFR 1508.27 (b)(1))

Constructing bat habitat capable of providing day, night, maternity, and winter roosting opportunities, and gradually reducing roosting opportunities at the Spruce Reach house would preserve the continuity of known roosts in the lower Umpqua River corridor. The gradual loss of habitat provided by the house would allow time for bat species to locate alternative habitat. In nature, bat roosts do not last forever, and bats are adaptable in finding and utilizing alternative roost sites. Design features (EA pp. 8-10) would be utilized to avoid or minimize direct and indirect effects to bats (EA pp.19-22).

The Proposed Action Alternative constitutes special management consideration as required by Special Status Species Management Manual 6840, and it would allow the conservation of big brown and *Myotis* bat species currently using the Spruce Reach house.

The likelihood and need for listing two Bureau sensitive species, the fringed myotis and Townsend's big-eared bat, would not increase as a result of the project. Both species have a wide local, regional, and national distribution (EA pp. 51-57, 59-65), and few individuals of both species have been observed in or captured near the Spruce Reach house (EA pp. 14-16).

The goals of the 2010 project plan for the O.H. Hinsdale Garden are to provide for the restoration and maintenance of the garden and provide public access for use and enjoyment of the site. Restoration and maintenance of the garden are ongoing. Plans to make the island more accessible to the public would move forward once the house, which is not suitable for human entry or use, is removed.

Public Health and Safety (40 CFR 1508.27(b)(2))

The Proposed Action would have a beneficial effect on public health and safety. The 2009 BLM Asset Management Plan directs the agency to dispose of non-mission critical constructed assets that are not maintained. The Asset Management Plan also states that abandonment on site can only be done if an asset will not present a hazard to the public or will not deteriorate to such an extent that it will eventually cause a hazard to the public. The Spruce Reach house has been unoccupied since at least 1994 resulting in a lack of maintenance and external and internal deterioration. There have been at least seven break-ins, including two in 2012, involving vandalism or theft in the 19 years that the BLM has managed the house. The condition of the house makes it a safety hazard, especially since escorted and unescorted public visitation to the island has increased with the installation of a culvert crossing to Highway 38 and restoration of the O.H. Hinsdale Garden. Safety and liability concerns associated with the house would cease to exist with removal of the structure.

Unique characteristics of the geographic area (40 CFR 1508.27(b)(3))

There are no known parklands, prime or unique farmlands, Areas of Critical Environmental Concern, or wilderness values that would be affected in the project area. The project area is within a developed recreation site, and construction and demolition activities would have no impact on water quality in the surrounding waterways.

Degree to which effects are likely to be highly controversial (40 CFR 1508.27(b)(4))

The effects of the Proposed Action will not be highly controversial. Guidelines for excluding bats from structures and criteria for creating successful alternative bat habitat are being incorporated into the project (EA pp. 8-10, 19-22). The timeline for transitioning bats from the deteriorating house to the alternative habitat is being extended from weeks to several seasons to allow monitoring and determine acceptance of the structures.

Degree to which effects are highly uncertain or involve unique or unknown risks (40 CFR 1508.27(b)(5))

Although occupancy of a bat house is never guaranteed, the proposed approach of creating alternative habitat and providing bats sufficient time to relocate before house demolition is anticipated to be effective (EA pp. 8-10, 19-22). A regional bat expert hired to evaluate bat habitat in the Spruce Reach house and the potential for creating alternative habitat in the barn estimates that the proposed project has a high (75%) chance of successfully creating a new maternity roost.

Development of alternative bat habitat associated with building removal has been tried before on the Coos Bay District with some success, and development of alternative bat habitat is being practiced/pursued by another Federal agency in western Oregon (EA p. 20).

Consideration of whether the action may establish a precedent for future actions with significant impacts (40 CFR 1508.27(b)(6))

The proposed project does not establish a precedent for future actions with significant impacts. Recreation developments outlined in the 2010 *Recreation Project Plan for the O.H. Hinsdale Garden Spruce Reach Island* (i.e. restrooms, picnic tables, benches, signs) would be located away from the house, barn, and bat condo so as to not interfere with roosting activity.

Consideration of whether the action is related to other actions with cumulatively significant impacts (40 CFR 1508.27(b)(7))

There are no cumulatively significant impacts identified by the environmental assessment. Impacts from the proposed project and the reasonably foreseeable actions to bats (EA pp. 14-22), recreation (EA pp. 22-23), and water resources (EA pp.23-29) were analyzed.

Scientific, cultural, or historical resources, including those listed in or eligible for listing in the National Register of Historic Places (40 CFR 1508.27(b)(8))

The Spruce Reach house does not meet the criteria for nomination to the National Register of Historic Places (EA p. 2). The O.H. Hinsdale Garden contains hundreds of rhododendrons, azaleas, camellias, and a variety of shrubs and trees, and it is potentially eligible for listing on the National Register of Historic Places as a cultural landscape (EA p. 3). The proposed project would not affect the eligibility status of the garden.

Threatened or endangered species and their critical habitat (40 CFR 1508.27(b)(9))

- The project would not affect spotted owls and their habitat because demolition and construction activities would not occur near a known owl site and these activities would not remove suitable habitat for this species. The proposed activities would not remove suitable nesting habitat for marbled murrelets. Murrelets do not use the house and barn as habitat, and demolition and construction would not change the structure and function of the adjacent forest. Consultation with the U.S. Fish and Wildlife Service has been completed and the Coos Bay District received a biological opinion and concurrence (FWS Reference No. 13420-2008-F-0118) on a suite of planned activities, including the use of heavy equipment and power tools adjacent to occupied habitat. Seasonal and daily timing restrictions (EA p. 19) would be followed during work on the barn to avoid adverse effects to marbled murrelets in the occupied spruce stand to the west of the garden. The Spruce Reach house is not within the 100-yard disruption distance specified in the biological opinion so work at the house would not need to follow seasonal and daily timing restrictions.
- The Umpqua Field Office has determined that the proposed activities would have “no effect” to federally threatened Oregon Coast coho salmon or green sturgeon and their associated Critical Habitat; thus consultation with the National Marine Fisheries Service is not required.
- The Proposed Action would also not result in adverse effects to Essential Fish Habitat as designated by the Magnuson-Stevens Fishery Conservation and Management Act (MSA; 16 U.S.C. 1855 as amended).

- There are no threatened or endangered botany species immediately adjacent to the Spruce Reach house and barn.

Any effects that threaten a violation of Federal, State, or local laws or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10))

The Proposed Action would not violate Federal, State, or local laws imposed for the protection of the environment. These include the Endangered Species Act and the Clean Water Act.

This project complies with the Coastal Zone Management Act, as there would be no adverse effects to Coastal Zone resources from implementing this project because water quality would not be impacted (EA pp.23-29).

On December 17, 2009, the U.S. District Court for the Western District of Washington issued an order in *Conservation Northwest, et al. v. Sherman et al.*, No. 08-1067-JCC (W.D. Wash.), granting Plaintiffs' motion for partial summary judgment and finding NEPA violations in the *Final Supplemental to the 2004 Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines* (USDA FS and USDI BLM 2007). In response, parties entered into settlement negotiations in April 2010, and the Court filed approval of the resulting Settlement Agreement on July 6, 2011. Projects that are within the range of the northern spotted owl are subject to the survey and management standards and guidelines in the 2001 ROD, as modified by the 2011 Settlement Agreement.

The Spruce Reach House Project is consistent with the 1995 Coos Bay District Resource Management Plan as amended by the 2001 ROD, as modified by the 2011 Settlement Agreement. The Resource Management Plan defers to the site-specific plans developed for the Dean Creek Elk Viewing Area and Spruce Reach Island (EA p. 3), and the 2001 ROD says that buildings used by bats are to be protected contingent on safety concerns and legal requirements (EA pp. 4-5).

Conclusion

Based on the information contained in the EA (DOI-BLM-OR-C030-2010-0005-EA), and all other information available to me, I have determined that the Proposed Action would not have a significant impact on the human environment within the meaning of section 102(2) (c) of the National Environmental Policy Act of 1969, and that an Environmental Impact Statement is not required. I have determined that the effects of the proposed activities would be in conformance with the 1995 *Record of Decision/Resource Management Plan* for the Coos Bay District as amended.

/s/ A. Dennis Turowski

March 8, 2013

A. Dennis Turowski
Umpqua Field Manager

Date

Spruce Reach House

March 2013

**DOI-BLM-OR-C030-2010-0005-EA
Coos Bay District
Bureau of Land Management
1300 Airport Lane
North Bend, OR 97459**

Chapter 1 Purpose and Need

Background

The Bureau of Land Management (BLM) acquired Spruce Reach Island in 1994 to enhance the Dean Creek Elk Viewing Area. The previous owners, the Hinsdale family, developed five acres of the 56 acre island including a nearly 5,000 square foot house with attached garage (Spruce Reach house) and a woodland garden (O.H. Hinsdale Garden). A nearly 1,000 square foot horse barn northwest of the house was added in the mid-1980s.

The *Dean Creek Elk Viewing Area 1998 Amendment to the 1993 Management Plan* (USDI BLM 1998), herein incorporated by reference, specified management actions for Spruce Reach Island. Preparation of the plan amendment included structural and historical assessments of the Spruce Reach house. The BLM determined that the house did not meet building codes for public use, and extensive dry rot and insect damage were noted (Graham 1995). A report by an architectural and engineering firm estimated that it would cost approximately \$980,000 to convert the house to a bed and breakfast (Otak 1998). New water and septic systems, along with design and permitting fees, were some of the items excluded from this cost estimate. A report commissioned by the BLM and authored by Stephen Dow Beckham, a noted local historian, concluded that the house did not meet any of the criteria for nomination to the National Register of Historic Places (Beckham 1996). The State Historic Preservation Office concurred with this finding (Osborne 2011).

Expensive to renovate and not officially significant as a structure, the 1998 Final Amendment directed that the house be dismantled if an acceptable plan for the building could not be developed and implemented by 2003. This decision was based on the deteriorating condition of the house at that time and security and public safety concerns (USDI BLM 1997, p. 36). An acceptable plan for the building was not developed, and 15 years later the unoccupied house has fallen into further disrepair.

Removal of the Spruce Reach house was originally analyzed in the Environmental Assessment (EA) OR-125-96-14 as part of the 1998 Final Amendment to the 1993 Management Plan. Further analysis is necessary because there is new information regarding use of the structure by bats that was not available when the EA was completed. Subsequent to the 1998 Final Amendment, the Spruce Reach house was found to provide habitat for several species of bats. Bat species that have been observed leaving the building and captured during summer surveys include big brown bat (*Eptesicus fuscus*), little brown myotis (*Myotis lucifugus*), Yuma myotis (*Myotis yumanensis*), and possibly California myotis (*Myotis californicus*). In 2011, a Townsend's big-eared bat (*Corynorhinus townsendii*), a Bureau sensitive species, was observed roosting in the house. Another Townsend's was seen flying in the house in 2012. Two additional species captured in a net set up near the Spruce Reach house, but not confirmed as leaving or entering the structure, are the long-eared myotis (*Myotis evotis*) and the fringed myotis (*Myotis thysanodes*), a Bureau sensitive species (Ormsbee 2011a, Ormsbee 2012a).

Bureau sensitive species require special management consideration to promote their conservation and reduce the likelihood and need for future listing under the Endangered Species Act (USDI BLM 2008a). Also, the *Coos Bay District Record of Decision and Resource Management Plan* (USDI BLM 1995), as amended by the *Record of Decision and Standard and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (USDA FS and USDI BLM 2001), contains direction to protect buildings used by bats from destruction and vandalism contingent on safety concerns and legal requirements.

The O.H. Hinsdale Garden contains hundreds of rhododendrons and azaleas, camellias, and a variety of shrubs and trees, and it is potentially eligible for listing on the National Register of Historic Places as a cultural landscape (Appendix A, Figure A1, Raper 2007). Bureau of Land Management policy is to manage cultural resources which are potentially eligible for listing in a way that protects them “against impairment, destruction, and inadvertent loss” while “encouraging and accommodating the uses determined appropriate through planning and public participation” (USDI BLM 2004, Section 8100.06). The goals of the *Final Recreation Project Plan for the O.H. Hinsdale Garden Spruce Reach Island*, herein incorporated by reference, are to provide for the restoration and maintenance of the O.H. Hinsdale Garden and provide public access for use and enjoyment of the site (USDI BLM 2010, p. 11).

Purpose of the Project

The purpose of this project is to remove the Spruce Reach house to protect human safety, eliminate potential federal tort liability associated with the house, and reduce administrative costs at Spruce Reach Island.

The 1995 *Coos Bay District Record of Decision and Resource Management Plan* (p. 49) defers to the site-specific plans developed for the Dean Creek Elk Viewing Area and Spruce Reach Island. The 1998 Final Amendment to the 1993 Dean Creek Elk Viewing Area Management Plan contains the following final action:

Action 3.2: Maintain the Spruce Reach house for five years or until an acceptable plan for the house is developed and undertaken sooner by interested organizations. Enter into a partnership agreement with these organizations. If no acceptable plan is developed within two years, or if an acceptable plan is developed, but no substantial implementation is undertaken within five years, dismantle the present structure, build an interpretive kiosk, provide public access on a reservation basis, and provide for public water and sewer systems.

Although the *Final Recreation Plan for the O.H. Hinsdale Garden Spruce Reach Island* (USDI BLM 2010) addressed maintenance of the Spruce Reach house, it did not provide detailed analysis of removing the house to eliminate human safety hazards, eliminate potential federal tort liability, and reduce administrative costs.

Need for the Project

The *Bureau of Land Management Asset Management Plan* (USDI BLM 2009) directs the Agency to dispose of non-mission critical constructed assets that are not replaced, repaired or maintained either by the Agency or a partner or concessionaire. The Asset Management Plan states that abandonment on site can only be done if an asset will not present a hazard to the public or will not deteriorate to such an extent that it will eventually cause a hazard to the public.

The unoccupied, deteriorating Spruce Reach house is a safety hazard, especially since access to Spruce Reach Island has been restored via a new culvert crossing and public visitation to the island has increased as a result of the restoration of the O.H. Hinsdale Garden. Increased numbers of visitors to the area also brings with it increased risk of tort liability to the United States. The Spruce Reach house is located approximately four miles east of Reedsport in the relatively busy Highway 38 corridor opposite the pastures of the Dean Creek Elk Viewing Area (Appendix A, Figure A2). In 2009, the Oregon Department of Transportation estimated that there were 2,501 to 5,000 daily vehicle trips on Highway 38 (ODOT 2011). Many motorists use the pullouts and parking lots north of the Elk Viewing Area to view wildlife, and some travelers stop to walk unescorted in the O.H. Hinsdale Garden on the island (Frazier 2010, Johnson 2012). The installation of a new culvert crossing to the island in 2010 for administrative access only and restoration activities in the garden have caught the attention of curious passersby. The

BLM currently offers a yearly guided tour of the garden in May during the blooming season. However, the BLM plans to eventually open the garden to the public each year between March and October (USDI BLM 2010). Doing so requires taking steps to address safety hazards presented by the abandoned Spruce Reach house.

Administrative costs related to securing the house and occasionally removing debris from the structure are relatively low (Table 1 page 9 this EA). These costs however are expected to increase as the Spruce Reach house deteriorates further. Structural failure will lead to more expensive clean-up operations and necessitate additional security measures.

Location

Spruce Reach Island sits between the Umpqua River and State Highway 38 and is part of the Dean Creek Elk Viewing Area and the Umpqua River Scenic Byway. The Elk Viewing Area starts approximately three miles east of Reedsport, Oregon. The Spruce Reach house is located approximately four miles east of Reedsport on the east end of the island in T.21S., R.11W., Section 33.

Decision Factors

In choosing the alternative that best meets the Purpose and Need, consideration will be given to the extent that each alternative would:

1. Eliminate human safety hazards;
2. Eliminate potential federal tort liability;
3. Reduce administrative costs;
4. Avoid contributing to the potential future need to list Bureau sensitive species under the Endangered Species Act; and
5. Comply with applicable laws and Bureau policies.

Conformance with Existing Land Use Plans

This project is in conformance with the *Final Coos Bay District Proposed Resource Management Plan/Final Environmental Impact Statement* (USDI BLM 1994) and its *Record of Decision and Resource Management Plan* (USDI BLM 1995), as supplemented and amended. The Coos Bay District ROD and RMP is supported by and consistent with the *Final Supplemental Environmental Impact Statement (FSEIS) on Management of Habitat for Late Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl* (Northwest Forest Plan [NFP]) (USDA FS and USDI BLM 1994a) and its *Record of Decision* (USDA FS and USDI BLM 1994b).

On December 17, 2009 the U.S. District Court for the Western District of Washington issued an order in *Conservation Northwest et al. v. Sherman et al.*, No. 08-1067-JCC (W.D. Wash.) granting the Plaintiffs' motion for partial summary judgment and finding NEPA violations in the *Final Supplemental to the 2004 Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines* (USDA FS and USDI BLM 2007). In response, parties entered into settlement negotiations in April 2010, and the Court filed approval of the resulting Settlement Agreement on July 6, 2011. Projects that are within the range of the northern spotted owl are subject to the survey and management standards and guidelines in the *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measurements Standards and Guidelines* (2001 ROD) (USDA FS and USDI BLM 2001), as modified by the 2011 Settlement Agreement.

The *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (USDA FS and USDI BLM 2001) reiterates and expands on the guidance for the protection of bat habitat contingent on safety concerns found on page C-43 of the *Record of Decision for Amendments to Forest Service and Bureau of*

Land Management Planning Documents Within the Range of the Northern Spotted Owl and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl (USDA FS and USDI BLM 1994b). The standard and guideline in the 2001 *Record of Decision and Standards and Guidelines* (p. 37) states that buildings are “extremely important roost and hibernation sites for which additional feasible protection measures are required to ensure their value as habitat is maintained.” The standard and guideline applies to all bat species, and buildings used by bats are to be protected from destruction, vandalism and disturbance. However, “protection of these structures must be contingent on safety concerns and legal requirements.” Furthermore, “site-specific roost plans based on inventory and mapping of resources will be completed when such plans are a needed tool to protect or mitigate roost habitat for bats.” The Spruce Reach House project is consistent with the 1995 Coos Bay District Resource Management Plan as amended by the 2001 ROD as modified by the 2011 Settlement Agreement.

Manual 6840 (USDI BLM 2008a) establishes policy for the management of species listed or proposed for listing pursuant to the Endangered Species Act and Bureau sensitive species which are found on BLM-administered lands. The manual directs the BLM to address Bureau sensitive species and their habitats in land use and implementation-level planning and associated National Environmental Policy Act (NEPA) documents.

The BLM manages Bureau sensitive species and their habitats to minimize or eliminate threats affecting the status of the species or to improve the condition of the species habitat by “determining, to the extent practicable, the distribution, abundance, population condition, current threats, and habitat needs for sensitive species, and evaluating the significance of BLM-administered lands and actions undertaken by the BLM in conserving those species.” In the absence of conservation strategies, the BLM is instructed to “incorporate best management practices, standard operating procedures, conservation measures, and design criteria to mitigate specific threats to Bureau sensitive species during the planning of activities and projects.”

Decisions to be Made

The Field Manager of the Umpqua Field Office, Coos Bay District BLM, must decide whether to let the Spruce Reach house deteriorate further and collapse or begin dismantling the house. This project is described in detail starting in Chapter 2.

The Manager must determine whether the selected alternative is a major Federal action significantly affecting the quality of the human environment. If the Manager decides it would not significantly affect the quality of the human environment, then the Manager can prepare and sign a Finding of No Significant Impact (FONSI).

If the Manager determines that the selected alternative would significantly affect the quality of the environment, then the project must either be dropped or modified, or have an Environmental Impact Statement and a Record of Decision prepared and signed before the project could proceed.

Public Involvement

The primary purpose of scoping is to identify agency and public concerns relating to a proposed project and help define the environmental impacts of concern to be examined in detail in the EA. The initial scoping process involved informing the public through a Scoping Letter and requesting comments on the proposal. Scoping letters were sent to adjacent landowners, agencies that have requested these documents, and other interested parties on the District’s NEPA mailing list. The Scoping Notice was published in *The World* newspaper on December 3, 2010, and posted on the District web page. The formal scoping period ran from December 3, 2010 to January 2, 2011.

Eleven citizens commented on the proposal to implement the decision to dismantle the Spruce Reach house. Respondents expressed support for: retaining the house as habitat for the bats, including consideration of an alternative that further limits access to the house; keeping the fireplace as a legacy of the building; creating alternative bat habitat prior to house demolition; and refurbishing the house and opening it to the public.

One agency, the State Historic Preservation Office, requested additional information on the project after receiving the scoping letter. The Office reviewed recent photos of the Spruce Reach house, the 1998 Final Amendment to the 1993 Activity Management Plan, and the Beckham report, and concurred that the house is not eligible for listing in the National Register of Historic Places (Osborne 2011).

Alternatives Considered but Eliminated from Detailed Analysis

Refurbishing the Spruce Reach house

This alternative would not fulfill the Purpose of the project to reduce administrative costs. It would be too costly to refurbish the house. Based on the 1998 cost estimate to convert the Spruce Reach house to a bed and breakfast private commercial enterprise, it is reasonable to assume that it would now cost more than one million dollars to comply with current building codes and make the deteriorating house habitable to BLM employees and the public. In 1998 Otak concluded that it would be more cost effective to carefully demolish the entire structure and salvage the reusable material than to restore the house. With limited current budgets, predicted decreasing future budgets, and no specific plan to use the building, restoration cannot be justified.

Partial demolition of the Spruce Reach house

Removing those portions of the Spruce Reach house most likely to fail in the coming years (the garage, the hall, the entry/pilot house), and keeping more structurally sound portions of the house such as the living room and dining room, the shop, and the south facing bedrooms (Appendix A, Figure A3) would not satisfy the Purpose of the project to reduce administrative costs, improve human safety, and reduce tort liability. The Spruce Reach house is uninhabitable and it serves no administrative purpose. If portions of the building are demolished then the remaining structure or structures would need to be secured to entry and possibly braced to ensure structural stability. To delay deterioration of the interior walls that would be exposed to the elements, eaves would need to be added. The aesthetic of the house within the garden would be diminished with partial demolition and the need for new construction to shore up the remaining rooms. With limited current budgets, predicted decreasing future budgets, and no specific plan for use of the building, partial demolition is not justified.

Fencing the Spruce Reach house

Constructing a chain link fence around the Spruce Reach house would not meet the Purpose of the project. While a fence may deter some people from entering the house, it would not fully protect public safety or eliminate potential federal tort liability associated with the house. A perimeter fence adequate to eliminate any possibility of access by trespassers would necessarily involve a design that is incompatible with aesthetic objectives of garden management.

Immediate demolition of the Spruce Reach house

Immediate demolition of the Spruce Reach house would satisfy the Purpose of the project to protect human safety, eliminate potential federal tort liability associated with the house, and reduce administrative costs. Demolition of the house would comply with management direction regarding safety concerns, but immediate removal has been considered but eliminated from detailed analysis because it could result in direct mortality to bats, and there would be no provision for alternative habitat and time for bats to find and begin using this alternative habitat.

Chapter 2 Alternatives

This Chapter provides a description of the No Action Alternative and a Proposed Action Alternative. For the Proposed Action Alternative to be considered it must meet the Purpose and Need while not violating any minimum environmental standards.

No Action Alternative

The No Action Alternative provides a baseline. This alternative describes the existing condition and the continuing trends in the absence of the proposed project.

Under the No Action Alternative, the Spruce Reach house would be left to deteriorate and collapse. Bureau personnel would continue to replace damaged windows and doors with plywood or similar material as necessary to limit public contact with debris and prevent access to the interior of the structure. The house would remain locked and posted No Entry. As the house deteriorates further, it may become necessary to close Spruce Reach Island to the public and employ extra measures to secure the structure.

The horse barn (Appendix A, Figure A4), a comparatively new structure relative to the house, would remain as is under the No Action Alternative. Other than a place to occasionally store garden tools and supplies, the structure serves no purpose. The barn has a dirt floor, four stalls, and exposed rafters.

The No Action Alternative does not meet the Purpose of the project because it does not protect human safety, eliminate liability or reduce administrative costs associated with managing an abandoned house in an unsupervised setting accessible by the public. This alternative does not respond to the need for action because a non-mission critical constructed asset that presents a hazard to the public would remain on Spruce Reach Island. Restoration and maintenance of the O.H. Hinsdale Garden would continue, but the goal to provide formal public access for use and enjoyment of the site would not be achieved as long as the house remains.

Proposed Action Alternative

Under the Proposed Action Alternative, the existing barn northwest of the house (Appendix A, Figures A2 and A4) would be restructured and made into a dedicated bat roost. A community bat roost or bat condo (Figures A18 and A19) and one or more Oregon wedge bat boxes (Figure A20) would also be built on Spruce Reach Island or in the Dean Creek Elk Viewing Area to provide additional alternative bat habitat. The Spruce Reach house would gradually be made less hospitable to bats. This would be done by the phased removal of shake siding and bat exclusion. The Spruce Reach house would eventually be removed in its entirety and the barn and other alternative habitat structures would be maintained subject to available funding.

The proposal is to build and maintain alternative habitat structures of sufficient design and roost capacity to support a similar or greater number of big brown, *Myotis* species, and Townsend's big-eared bats that currently occupy the Spruce Reach house. It is grossly estimated that there are about 100 to 200 bats of multiple species residing in the existing house during the active bat season (spring and summer) (Langenstein 2012a).

While the Proposed Action Alternative does not immediately eliminate the safety hazard presented by the house, it meets the Purpose and Need by reducing the District's exposure to liability sooner than letting the house deteriorate on its own. The Proposed Action Alternative creates alternative bat habitat to offset the eventual loss of the house and thereby complies with Bureau sensitive species guidance. Because of concerns for public safety, this option complies with the Northwest Forest Plan. The BLM and Forest

Service both operate under the Northwest Forest Plan as amended, and a September 2012 memo coauthored by the U.S. Forest Service Region 6 and BLM (Interagency) Bat Specialist and titled *Information and Direction Regarding Buildings Used by Bats Within the Northwest Forest Plan Area* (USDA FS 2012) contains the following recommendation: “Where retention of a building is not possible because human health and safety outweigh the importance of managing the building for bat habitat..., field units should document their rationale and mitigate for the loss of the building.” As recommended above, the public safety related rationale is documented in this Environmental Assessment and the development of alternative bat habitat is included in the proposed action.

As recommended by the Interagency Bat Specialist (Ormsbee 2012b), an action plan outlining the details and timing for dismantling the Spruce Reach house and constructing alternative bat habitat would be developed as part of the Proposed Action Alternative. This plan would:

1. Identify the type and timing of additional bat surveys or bat habitat assessments that will be conducted so that the potential impacts identified in this EA from dismantling the house are minimized to the extent practicable and potential effectiveness of constructed bat habitat is maximized;
2. Identify specific actions, materials, costs and timing for dismantling the house to reduce potential impacts identified in this EA to bats and optimize the chances they will use alternative habitat;
3. Identify specific actions, materials, costs and timing for converting the barn to bat habitat and installing additional roosting habitat;
4. Identify points of contact responsible for insuring coordination between dismantling the house and converting the barn so that human safety issues and opportunities for adoption of the alternative habitat by bats are well orchestrated; and
5. Identify specifics of when and how bats may need to be excluded or removed from the house.

A Federal, State or contracted wildlife biologist would write the action plan with the help of Coos Bay District BLM employees and outside bat specialists. A March 2012 report prepared for the Coos Bay District BLM by Nieland Consulting would be considered during the development of the action plan. The *Spruce Reach House Bat Roost: Site Review and Recommendations* report (Nieland 2012) outlines the recommended components and a proposed timeline for conversion of the barn to bat habitat. Information from this report and other sources was used to create an initial plan for the house and barn that can be found in the Design Features of the Proposed Action Alternative section below. The proposed methods and timelines may change in response to additional information gathering, action plan preparation, documented acceptance of alternative habitat, public safety considerations that make expedited removal of the house necessary, etc.

The design and implementation of the alternative bat habitat represent a one-time administrative cost that will be followed by annual maintenance and monitoring costs. It is possible that construction costs would be shared between the District and partners interested in the effectiveness of creating alternative habitat. Table 1 below contains approximate cost estimates for the activities associated with each alternative. The cost summary does not account for the potential expenses associated with any successful tort claim(s) that could result from injuries to members of the public should the house remain under the No Action Alternative.

Table 1. Estimated cost summary of No Action and Proposed Action.

ALTERNATIVE	ACTIONS	ESTIMATED COST
<p>No Action Alternative</p>	<p>House and barn receive maintenance in response to damage and deterioration</p> <ul style="list-style-type: none"> • Windows and doors replaced with plywood or other material as needed. Wood, metal and glass that falls from the buildings removed from the site 	<p>< \$5,000 per year maintenance with escalating disposal and security costs expected</p>
<p>Proposed Action Alternative</p>	<ul style="list-style-type: none"> • Bat house design, construction, maintenance and monitoring • Annual maintenance and monitoring • House demolition 	<p>\$50,000 FY13-FY18, includes approximately \$7,500 for bat condo (Langenstein 2012a, Ferland 2012a)</p> <p>\$1,200 after FY18</p> <p>\$40,000-\$50,000</p>

Following creation of alternative habitat, the Spruce Reach house, including the concrete garage floor, would be completely razed, and demolition debris would be legally disposed of off-site. The building footprint would be contoured to match the surrounding terrain. Prior to demolition, the vinyl flooring, and wiring if necessary, would be disposed of at a landfill authorized to handle asbestos waste. The refrigerators and other appliances would be recycled. If an underground heating oil tank is discovered then any remaining oil would be collected for recycling or disposal, and the tank would be removed or filled in place with an inert material. Soil samples would be collected to determine if remediation of oil contaminated soil is necessary. The septic tank, if one exists, would be located and disposed of off-site or filled with solid material and abandoned in place. All or part of the pilings would be sent to a lined landfill, reused on-site for interpretive displays or donated to a non-profit organization such as Habitat for Humanity for resale. A portion of the pilings under the house may be left on-site and incorporated into an interpretive display. Pilings cut off below ground level are not considered solid waste according to the Oregon Department of Environmental Quality and they could be buried (Filip 2011).

Design Features of the Proposed Action Alternative

This section describes measures designed to avoid, minimize or rectify impacts on resources and are included as part of the proposed action. Design features are site specific measures, restrictions, requirements, or mitigations included in the design of the project in order to reduce adverse environmental impacts.

Wildlife

Bats

Steps to make the barn more attractive to bats and the Spruce Reach house gradually less hospitable to bats include:

- During Year 1, the barn would be reconfigured for bat habitat and the bat condo and Oregon wedge structures would be built. The roof of the barn would be restructured to create a warmer environment for maternity roosting. The aim would be to create a building with a hot attic space; hottest at the peak and progressively cooler towards the eaves. The existing metal roof would be replaced with a darker roof to increase solar heating and attic warmth, and one gable end of the barn would be closed and the size of openings along the eaves would be reduced to discourage predatory owl roosting in the structure.
- A variety of large slotted bat houses would be installed in the barn between the roof peak and the eaves to provide a number of different temperature zones and crevice widths for bats. Other linear slotted spaces would also be created. Slots and crevices would favor colonization by big brown and *Myotis* species bats. The gable end on one side of the barn would have an opening that leads to an attic space designed to accommodate Townsend's big-eared bats.
- Design, construction and installation of the roosting structures would be guided or overseen by an individual or individuals with specialized knowledge of bats and bat habitat.
- A planted European tricolor beech tree south of the barn would be cut down, topped or limbed to allow more sunlight to reach the barn because direct solar radiation on the barn is critical to the success of the habitat transfer. Two spruce trees, 12 inches and 22 inches diameter at breast height, south of the barn may also be cut down, topped or limbed to further reduce shade in the area. Observations and monitoring results have revealed that the barn roof receives direct sun in June and July despite the presence of the trees immediately south of the barn. The sun at this time of year is high in the sky. Vegetation removal would ensure maximum solar exposure of the structure during late spring and late summer when the sun is lower in the sky.
- During Year 2, late September to early October, shakes would be removed from the north side of the house.
- During Year 3, late September to early October, shakes would be removed from the east and west sides of the house and one third of the shakes would be removed from the south side of the house.
- During Year 4, late September to early October, the remaining shakes on the south side of the building would be removed and interior shakes in the hall (Figures A3 and A11) would also be removed. Windows not replaced with plywood would be opened to cool the building and discourage use as a maternity roost. Grating and mesh or something similar would be placed over the windows to allow air flow, but deny entry into the building.
- During Year 5, late September to early October, the Spruce Reach house would be checked for bat use. If necessary, tubes with one way valves and netting (BCI 2011) would be used to allow bats to exit the house but not reenter. Exclusion would happen immediately before demolition of the house, and a wildlife biologist would be on site during demolition to advise the contractor in the event individual bats are encountered. Hand tools and heavy equipment such as excavators and dump trucks would be used to raze and remove the structure from Spruce Reach Island.
- Bat activity would be monitored at all alternative habitat structures as identified in the action plan. Biologists will check for guano accumulation and may use acoustic monitoring and/or capture surveys to determine species usage of structures. Successful implementation of the alternative habitat would mean that the barn and other structures taken together are receiving a similar or greater amount of big brown and *Myotis* species roosting and maternity use and Townsend's roosting as compared to the house. If the alternative habitat receives year-round use by multiple species of bats sooner than later then the house removal schedule may be accelerated.

Marbled Murrelets

The following seasonal and daily timing restrictions are specified in the *Biological Opinion and Concurrence on the FY 2008-2013 Programmatic Suite of Activities Planned by the District and the Tribe* (FWS Reference Number 13420-2008-F-0118) (USDI FWS 2008), herein incorporated by reference:

- To avoid adverse effects to marbled murrelets, potentially disruptive activities such as heavy equipment operation and the use of power tools would not occur at the barn site between April 1st and August 5th, the marbled murrelet critical breeding period. The barn is within the 100-yard disruption distance of the occupied murrelet stand to the west and the house is outside of the 100-yard disruption distance.
- From August 6th through September 15th, potentially disrupting activities at the barn site would be confined to the time period between two hours after sunrise and two hours before sunset.

Vegetation

- Rhododendrons and camellias immediately adjacent to the house would be pruned as recommended by the Field Office Botanist and cooperating members of the American Rhododendron Society prior to demolition of the Spruce Reach house to make the plants more wind firm and less susceptible to mechanical damage.
- Garden plants near the house would be mulched, watered and fertilized before and after demolition of the house to help them adjust to higher wind and light levels.
- Heavy equipment tires and tracks would be kept at least four feet away from the base of all plants to the extent practical during demolition to prevent soil compaction in the rooting zone.
- The BLM Botanist would be on-site during demolition to advise the Contracting Officer or Contracting Officer's Representative in matters involving the garden.
- A planted European tricolor beech south of the barn would be cut down, topped or limbed to provide more solar exposure to the reconfigured barn. Two adjacent spruce trees may be felled, topped or limbed to further reduce shade.

Chapters 3 & 4 Affected Environment & Environmental Consequences

This Chapter combines the affected environment (typically EA Chapter 3) and effects analysis (typically EA Chapter 4) and is arranged by specific resource values that may be affected. The affected environment includes the current baseline conditions within the project area and includes other reasonably foreseeable actions as if they were completed on the ground. This Chapter also addresses the interaction between the effects of the alternatives and the environmental baseline, describing the effects that might be expected, how they would occur, and the incremental effects that could result.

Reasonably Foreseeable Actions

The *Final Recreation Project Plan for the O.H. Hinsdale Garden Spruce Reach Island* (USDI BLM 2010) details the implementation phases for proposed facilities and development actions. Recreation developments at the O.H. Hinsdale Garden will be focused primarily on meeting the minimal amenity needs of visitors to this eventual day use area. Facilities will primarily be used to support garden maintenance, provide for visitor comfort and sanitation, and to provide information and interpretation to protect the site and enhance the visitor experience.

Currently the BLM offers seasonal and semi-supervised visitation of the garden. Work groups coordinate their efforts with the District office and public garden tours have occurred on May 21, 2011 and May 12, 2012. Installation of a footbridge over Hinsdale Slough approximately 100 feet south and east of the house is scheduled for summer 2013.

Cumulative Effects Considerations

The Council on Environmental Quality (CEQ) provided guidance on June 24, 2005 as to the extent to which agencies of the Federal government are required to analyze the environmental effects of past actions when describing the cumulative environmental effect of a proposed action in accordance with Section 102 of the National Environmental Policy Act. CEQ noted the “[e]nvironmental analysis required under NEPA is forward-looking,” and “[r]eview of past actions is only required to the extent that this review informs agency decision making regarding the proposed action.” This is because a description of the current state of the environment inherently includes effects of past actions. Guidance further states that “[g]enerally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effect of past actions without delving into the historic details of individual past actions.”

Detailed information on individual past actions for this previously privately-owned property is available via three articles in the Journal of the American Rhododendron Society. The Fall 2007, Winter 2008 and Spring 2008 Journal issues (Hammond and Wylie 2007, 2008a, 2008b) are available on the Coos Bay BLM web page under Recreation/Recreation Sites/Dean Creek Elk Viewing Area.

Condition of House / Safety

The Spruce Reach house has a 4,500 square-foot main level, a 450 square-foot loft space (pilot house), and a 950 square-foot attached garage at ground level (Appendix A, Figure A3). The house has been unoccupied since at least 1994 resulting in a lack of maintenance and external and internal deterioration due to water damage, dry rot and pest infestation. The garage has a concrete slab foundation, and sill plates and wall studs in the garage show powder post beetle and water damage. Trusses in the garage are discolored with fungus and mold and they remain wet all winter due to roof leaks. The foundation of the house consists of approximately 100 rectangular pressure-treated pilings of varying dimensions (6-8 inches x 8-9 inches) that are set in the ground. Untreated cross bracing and beams support the main floor of the building. Untreated materials have been damaged by powder post beetles, carpenter ants, termites and dry rot, particularly where they are exposed along the edges of the house (Graham 1995). About half of the post and beam framing shows signs of pest infestation, and the roof is structurally inadequate (Otak 1998).

The Spruce Reach house contains vinyl flooring, older appliances (3 refrigerators, one water heater, electric range and oven, dishwasher) and pressure-treated wood. Approximately 400 square feet of flooring in the kitchen and pilot house above the main entrance contain asbestos in a nonfriable form. Nonfriable asbestos-containing materials have a binder that holds the asbestos fibers within a solid matrix. These fibers are not easily released unless the materials are mishandled, damaged or in badly worn or weathered condition (ODEQ 2006). Asbestos insulation was removed from the pipes under the house by a contractor in October 1996 in accordance with safety procedures that prevented its release. Some of the wiring under the house may have asbestos insulation. The three refrigerators in the meat room were manufactured before 1995. These older appliances may contain chlorofluorocarbon (CFC) refrigerant, foam insulation that contains ozone-depleting substances, and hazardous components including polychlorinated biphenyls (PCBs), mercury, and oil contaminated with CFCs (USEPA 2010). There is a boiler in the shop that was used for a radiant heating system. The copper feed line to this oil-fired unit extends through the floor. Either an above ground heating oil tank was previously removed or an underground heating oil tank is somewhere on the property. The location of the septic tank and drain field is unknown. If one or more underground tanks exist in the yard there is a remote possibility that they could collapse. The barn does not contain hazardous materials or pressure-treated wood.

The vinyl flooring, appliances and pressure-treated wood are intact and therefore pose little threat to human health and the environment at this time. Damage to these items from building collapse however could release asbestos fibers and increase disposal costs or vent refrigerant. A Department of Environmental Quality (DEQ) licensed asbestos abatement contractor or a certified asbestos worker is not

needed to perform nonfriable asbestos abatement. If the vinyl flooring is damaged or weathers to the point where asbestos fibers can be released, then a DEQ licensed contractor or certified worker would be required to remove and dispose of the friable material (ODEQ 2006).

The Department of Interior Safety and Health Handbook (1999, Chapter 23) states that “Each bureau will establish a public safety program that minimizes the potential for injury, illness, death and/or property damage to the public while they are visiting Departmental facilities or in the proximity of Departmental operations.” As noted in Chapter 1, members of the public visit Spruce Reach Island. Currently, the public can approach and crawl under the locked and posted, but otherwise unsecured, Spruce Reach house. The remains of decks and dog kennels in the yard are potential tripping and falling hazards, and people in close proximity to the house risk being struck by material falling from the building. Wood and metal fell from the north side of the building in early 2011 (Appendix A, Figure A5). Otak, an architectural and engineering firm, reported in 1998 that the “roof is structurally inadequate and many of the rafter extensions at the overhangs have had companion pieces nailed to them due to dry rot.” In 1995, a BLM engineer conducted an evaluation of the house and found that window sills, casings and sashes had severe powder post beetle, carpenter ant and dry rot damage. To prevent potential injury to visitors and BLM staff, and limit access to the interior of the house, all four 5-foot by 6-foot plate glass windows in the hall have been replaced by plywood and the glass panes in the double doors have been covered with plywood as of February 2012 (Appendix A, Figure A6). One of these large windows fell from its frame in 2009 and another window dropped to the ground in the summer of 2011 (Appendix A, Figures A7 and A8). The house is built on pilings and the crawl space under the main floor is a confined space and potential overhead hazard. Nails, splintered wood and other debris may be present in this area. Sewer and water pipes and disconnected electrical wiring, possibly with asbestos covering, remain under the house (Appendix A, Figure A9).

Potential injury associated with unauthorized entry of the Spruce Reach house is a concern. There have been at least seven break-ins, including two in 2012, involving vandalism or theft in the 19 years that the BLM has managed the house. Past experience suggests that trespass may be an ongoing issue as long as the house remains. Inside the Spruce Reach house, steep stairs without handrails accessing the second story pilot house above the main entrance and the loft above the fireplace are a potential falling hazard to individuals that may break into the building. Roof leaks have led to rot of interior floor boards in the second story pilot house and rot of the ceiling and floor boards in portions of the hall (Appendix A, Figures A10 and A11). Weakened floors and ceilings are a hazard to individuals who may enter the posted and locked house. In July 2012, a partial collapse of the pilot house floor and hall ceiling underneath created an approximately 4 square foot hole between the first story and second story of the house. Water leaks have so compromised the structural integrity of the garage attached to the house that collapse of the roof could happen at any time (Appendix A, Figure A12). As a result, the garage was sealed in 2011 to discourage entry in order to protect public safety.

Potential illness associated with unauthorized entry of the Spruce Reach house is a remote possibility. There is a high likelihood that the house is occupied by deer mice in addition to the bushytail woodrats and Douglas squirrels that are known occupants (Nieland 2012). Rodent droppings, urine and nesting materials conspicuous throughout the interior of the house are a potential hantavirus health risk to those who may enter the building. Hantavirus is spread when virus-containing particles shed by deer mice are stirred into the air and inhaled (CDC 2011). There have been 16 cases of hantavirus pulmonary syndrome in central Oregon since 1993, and 10 of these cases list contact with mice as the exposure agent (Oregon Health Authority 2012).

The sequence and timing of eventual building collapse is difficult, if not impossible, to accurately predict. Portions of the building such as the living room and dining room, the shop, and the south facing bedrooms (Appendix A, Figure A3) are relatively sound, and these areas could remain intact for another

20 to 30 years (Broussard 2011). Other areas of the building such as the garage, hall and second story pilot house are much less sound due to water damage. The garage roof is sagging and can be expected to partially or completely collapse at any time. Two areas of the hall floor and portions of the second story pilot house floor that have not already collapsed are deteriorated to the point that they likely would not support a person's weight. As previously noted, shifting windows in deteriorating frames necessitated replacing hall windows with plywood. All decking on the north and southeast sides of the house was previously removed for safety.

Resources

Wildlife

Affected Environment

Spotted owls

The spruce stand on Spruce Reach Island to the west of the house and barn has suitable nesting, roosting and foraging habitat for spotted owls (*Strix occidentalis*), a species listed as Threatened under the Endangered Species Act. Surveys on the island for spotted owls have not been done within the last 10 years, and the spruce stand is not within the 1.5 mile home range radius of any known spotted owl nest site. The nearest known spotted owl site is approximately 9 miles east of Spruce Reach Island.

Marbled murrelets

Spruce Reach Island has suitable nesting habitat for marbled murrelets (*Brachyramphus marmoratus*), a Threatened species under the Endangered Species Act. Standard protocol surveys have been completed by BLM biologists and the spruce stand west of the barn has been documented as an occupied marbled murrelet stand.

Bats

The Spruce Reach house is currently providing habitat for several species of bats based on incidental observations and more formal protocol surveys. It is grossly estimated that there are about 100 to 200 bats of multiple species residing in the existing house during the active bat season (spring and summer) (Langenstein 2012a). Bureau of Land Management wildlife biologists have observed and/or heard roosting bats in the exterior shake siding on all sides of the Spruce Reach house and attached garage. Biologists have also observed flying and roosting bats at multiple locations within the house and garage, and bats have been seen exiting from under the house (Langenstein 2010a, 2011a). Guano deposits at several locations inside and outside the house show where groups of bats roost or have roosted. Figures A11, A13 and A14 in Appendix A show some of the more conspicuous roost sites. There are many more inconspicuous roost sites in cracks and crevices. Over the past several years, wildlife biologists have made visual and auditory detections of larger bats and smaller *Myotis* species bats in the months of April through June and August through December, indicating year-round use of the structure by multiple species of bats for day, night, maternity and winter roosting. The Forest Service Region 6 and BLM Bat Specialist has stated that "sites that are used across multiple seasons by multiple species are rare because few locations provide the range and consistency of temperatures across seasons and micro-habitats to accommodate multiple species." (Ormsbee 2011a). The Bat Specialist also said that the Spruce Reach house is "unique to our knowledge for roost sites along the southern Oregon coast" (Ormsbee 2011a). A comprehensive survey of buildings for bat utilization has not been conducted on the southern Oregon coast.

Bat capture surveys have been conducted at Spruce Reach Island over several years. Surveys have been conducted according to a standardized protocol developed for the Bat Grid, a systematic inventory of bats in Oregon and other states (Ormsbee 2008). Bureau of Land Management and U.S. Forest Service

(USFS) biologists and trained volunteers set up mist nets at four separate locations near the Spruce Reach house to capture bats. The selection of net sizes and locations were originally directed on site by Pat Ormsbee (Ormsbee 2010), and the survey design has been repeated during subsequent roost monitoring efforts at the site. Nets were placed near the house, but not so close as to attempt to capture all bats leaving any specific location of the roost. During the 2004 and 2009 surveys, large numbers of captured bats required that the nets be closed for one hour during the time of greatest activity. The closure of the nets within the protocol survey time was required to allow biologists time to process the captured bats and avoid excessive stress and negative impacts to bats that could result from extended time in the nets or excessive holding time in capture bags. Six species of bats have been captured and processed at Spruce Reach Island by BLM and USFS biologists and trained volunteers according to the Bat Grid protocol: big brown bat (*Eptesicus fuscus*), little brown myotis (*Myotis lucifugus*), Yuma myotis (*Myotis yumanensis*), California myotis (*Myotis californicus*), long-eared myotis (*Myotis evotis*), and fringed myotis (*Myotis thysanodes*), a Bureau sensitive species. One Townsend's big-eared bat, also a Bureau sensitive species, was observed hanging pendant from the ceiling of the Spruce Reach house shop on October 20, 2011. Another Townsend's was observed flying inside the shop in August 2012.

Net captures indicate that at least four species have used or are using the house for a maternity roost. Pregnant and lactating adult and juvenile big brown bats, little brown myotis, and Yuma myotis were observed leaving the building and captured in nets set up near the house. The house was previously determined to be a maternity roost for California myotis (Langenstein 2010a), but current maternity roost status for this species is unknown. This species was last captured in 2004. California myotis may have roosted in a front porch of the Spruce Reach house and the porch was subsequently removed due to deck rot and associated safety concerns. In the opinion of the Coos Bay BLM wildlife biologist responsible for several years of net capture surveys of bats near the Spruce Reach house, the structure is likely functioning as a fringed myotis maternity roost. The U.S. Forest Service Region 6 and BLM Bat Specialist believes however that adequate surveys have not been conducted to determine if the house is being used as a maternity roost by fringed myotis (Ormsbee 2012a). There are no confirmed visual observations of fringed myotis exiting the building and entering a net. A lactating female fringed myotis has been caught at midnight and another female was caught after midnight on June 23, 2009 in a net set up south of the garage door and west of the southwestern corner of the house. Little brown myotis/Yuma myotis and big brown bats were captured in the same net. The late night fringed myotis captures indicate that the bats may have been coming from another location and may use the site as a night roost (Ormsbee 2012c, 2012d). One male long-eared myotis has been captured at the site, but presence of females and use of the house as a maternity roost for this species is unknown.

Although swarming behavior has never been witnessed at the Spruce Reach house, there is a possibility that the structure could be used for swarming or fall breeding by multiple species (Ormsbee 2011a). In August of 2002 and 2004, a relatively high number of males, including a reproductive big brown bat and fringed myotis, were captured near the house. During fall breeding, bats congregate from multiple areas increasing genetic diversity.

Construction of the Spruce Reach house began in 1912 and finished in 1947. It is situated in an agricultural and forested landscape along a major river corridor where bats travel and feed, and the house is elevated and open underneath and clad in split cedar shakes with gaps. Conspicuous roosting inside the house probably began in the years following acquisition by the BLM as the house deteriorated and openings to the outside formed. The Spruce Reach house provides suitable habitat for several species of bats most likely because of its proximity to water and foraging habitat, because it provides protection from predators, and because it has favorable temperature and moisture regimes. Net captures and visual surveys indicate that roosting is concentrated on the west and south sides of the building, although, as mentioned earlier, biologists have observed and/or heard bats in the exterior shake siding on all sides of the building. Conducting an intensive survey to determine exactly where bats roost, when, and which

species has not been done. Because breeding females and young generally require different kinds of roosts than males and nonbreeding females (Christy and West 1993), bats can be expected to use different portions of the house based on sex, age and breeding condition.

All seven species of bats mentioned above are known to roost in buildings (Appendix B, column 4), although one publication lists fringed myotis and California myotis building use as uncommon (rarely documented, atypical roost habitat) (USDA FS 2006). In North America, big brown bats, little brown myotis and Yuma myotis are commonly associated with buildings (Barbour and Davis 1969 cited in Kunz and Reynolds 2003). Some bat species have probably increased in number and distribution since construction of European-style buildings in North America (Kunz and Reynolds 2003). For example, the use of buildings by big brown bats and little brown myotis has made it possible for these two species to extend their summer ranges into previously uninhabitable regions of North America (Fenton and Barclay 1980, Kurta and Baker 1990, Whitaker and Gummer 2000 as cited in Kunz and Reynolds 2003). Big brown bats, little brown myotis and Yuma myotis have been the most detected species in the vicinity of the Spruce Reach house, and therefore likely represent the majority of the bats using the structure. These three species account for 91% or 107 of the 117 bats captured for the survey years summarized in Appendix B, column 8. California myotis and long-eared myotis were last captured in nets near the house in 2004. California myotis may have roosted in a front porch of the Spruce Reach house and the porch was subsequently removed due to deck rot and associated safety concerns. Two fringed myotis were captured in 2009 and one fringed myotis was captured in 2004, and, as mentioned earlier, one Townsend's was observed in the shop in 2011 and another Townsend's was observed in the same location in 2012 (Appendix B, column 8). Nets set up near the Spruce Reach house did not capture all bats leaving and entering the building and therefore captures cannot be used to quantify the exact number of individuals per species using the building at any one time. One hundred and twenty-eight big brown, little brown and Yuma myotis vocalizations have been identified by consensus with acoustic analysis software for the survey years summarized in Appendix B, column 8. This compares to a total of 27 vocalizations identified by consensus for fringed myotis, Townsend's, California myotis and long-eared myotis combined.

Appendix B contains range information for the seven bat species mentioned above. The seven species each have a multi-state range, and the Oregon Department of Fish and Wildlife (2012) says that six of the species are found throughout Oregon and the Townsend's big-eared bat is found throughout much of Oregon. The Western Bat Working Group (WBWG) (2011a) considers six of the species multiple habitat species (as opposed to tree-roosting, cliff-roosting or cave-roosting). Although categorized as cave-roosting bats, Townsend's big-eared bats do roost in buildings, bridges, hollow trees and rock crevices. Appendix C contains Oregon and Washington observation information for the seven bat species from the geographic biotic observations (GeoBOB) database. There are between 271 detection records (fringed myotis) and 1,015 detection records (long-eared myotis) per species in the two state area.

In addition to being Bureau sensitive species, the fringed myotis and Townsend's big-eared bat are considered Species of Concern by the U.S. Fish and Wildlife Service (FWS). The FWS defines Species of Concern as taxa whose conservation status is of concern to the U.S. Fish and Wildlife Service, but for which further information is still needed. Such species receive no legal protection and use of the term species of concern does not necessarily imply that a species will eventually be proposed for listing (USDI FWS 2012a). The FWS also considers the long-eared myotis and Yuma myotis as Species of Concern. The WBWG Regional Priority Matrix lists the fringed myotis and Townsend's as imperiled or at high risk of imperilment in the area west of the Cascades in Oregon, Washington and Canada (WBWG 2011a). According to the WBWG, these species should be considered the highest priority for funding, planning and conservation actions. The International Union for Conservation of Nature and Natural Resources Red List of Threatened Species categorizes both species as Least Concern and says the population trend is stable based on assessments in 2008 (IUCN 2012). A species is listed as Least Concern "because of its

wide distribution, occurrence in a number of protected areas and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.” The fringed myotis has been documented on the following BLM districts in Oregon: Burns, Coos Bay, Klamath Falls, Lakeview, Medford, Prineville, Roseburg and Vale, and it is suspected to occur on the Eugene and Salem Districts. Townsend’s have been documented on the following BLM districts in Oregon and Washington: Burns, Coos Bay, Eugene, Klamath Falls, Lakeview, Medford, Prineville, Roseburg, Salem, Vale Oregon, Vale Washington, and Spokane (USDI BLM 2011).

Despite settlement and forest management, the lower Umpqua River and lower Smith River corridors still appear to offer many and varied roosting opportunities in addition to the Spruce Reach house. Appendix D contains a map showing the area within 8 miles of the Spruce Reach house, a commuting distance documented in another area for post-lactating fringed myotis females between roost sites and foraging areas (Langenstein 2005). The map shows the interface between agricultural lands and forest. According to Bat Conservation International (BCI) (2011b), greatest bat house success has been achieved in areas with diverse habitat, especially where there is a mixture of varied agricultural use and natural vegetation. A mature spruce stand is located immediately to the west of the Spruce Reach house, and older, taller trees favored by bats for their cracks and cavities are found in the Elliott State Forest to the south of Spruce Reach and on Forest Service land to the north and east of Spruce Reach. The proposed 30,000-acre Devil’s Staircase Wilderness begins across the Umpqua River and extends east.

In addition to forests, bridges also offer roosting opportunities. In July 1998, Bat Conservation International personnel surveyed 77 bridges within the Coos Bay District BLM boundary for day and night roosting bats. Ninety-five percent or 63 of the 66 bridges considered suitable were used by bats, primarily as night roosts (BCI 1998). Suitable for night roosting, according to BCI, meant that a bridge had vertical concrete roosting surfaces located between beam spaces and the structure received full sun for a majority of the day. The most frequent night roost signs encountered (in descending order of occurrence) appeared to be from the genus *Myotis* with signs from big brown bats and big-eared bats also common. Although none of the 66 bridges had crevices which were considered ideal for use by day roosting bats, 17% of the bridges were occupied by day roosting bats. Sixteen day-roosting bats were encountered in 11 bridges, including 6 Townsend’s, 4 long-eared myotis (one carrying a pup), one fringed myotis, 3 little brown bats, and one unidentified *Myotis*. The bridge report concluded with the following paragraph:

The extremely high percentage of bridges used by bats demonstrates the importance to bats for day and night roosting habitats. In fact, bridges with suitable crevices in nearby regions are housing hundreds of bats, often as maternity roosts, with as many as 10 different species. In the study area bridge crevices or cavities are readily occupied, even when they are seemingly inadequate. In all cases but one, these bats were found using semi-protected portions of the bridge low to the ground in the open beams, leaving them vulnerable to predation or human disturbance.

Bridges on the lower Umpqua and Smith Rivers were probably not included in the *Bat Use of Bridges* report, and it is unknown if these structures have been surveyed for bat use. There are at least seven bridges within 4.5 miles of the Spruce Reach house that are candidates for bat roosting.

Spruce Reach house is one of many buildings along the lower Umpqua and Smith Rivers that can reasonably be expected to attract bats. Two examples of occupied structures include the Smith River Grange at milepost 9 on Smith River Road and a private residence approximately 9 miles to the east of Spruce Reach Island. The grange hall has seen sustained bat use over several years (Dailey 2012), and the private landowner found 83 bats in her home between July 21 and September 30, 2008. A replica trapper’s cabin in an upstairs bonus room, complete with a 4-foot by 12-foot shake roof, likely attracted

bats because it was warm and dry. Bats made their way into the house through narrow cracks in exterior walls and a loose soffit screen. Both buildings are next to rivers and both buildings are exposed to sunlight, two of the most important criteria for successful bat houses (BCI 1993).

White-nose syndrome (WNS) is a disease affecting hibernating bats. White-nose syndrome is associated with extensive mortality of bats in eastern North America. U.S. Fish and Wildlife biologists and partners estimate that at least 5.7 million to 6.7 million bats have now died from WNS (USDI FWS 2012b). First documented in New York in the winter of 2006-2007, WNS has spread quickly into 16 eastern states and 4 Canadian Provinces, and the fungus associated with WNS has been detected as far west as Oklahoma (USDI FWS 2010). Big brown bats and little brown bats are two of the species affected by WNS. White-nose syndrome has not been detected in Oregon or any other state in the Pacific Northwest. A final draft of the WNS Response Plan by the Pacific Northwest Interagency WNS Team was scheduled for completion in early 2012 (WBWG 2011b), but it is not available yet. The Plan includes a watershed (HUC 5) risk assessment to help prioritize where WNS response efforts are most needed, and identifies geographic triggers and associated management actions as WNS moves west. It is unclear how WNS will affect western bat species or big brown bats and little brown myotis in western habitats. Bats in western temperate climates, especially species like the big brown and little brown that span the United States (Appendix B, column 3), may survive WNS because they spend relatively shorter periods hibernating than their conspecifics in more frigid climates. There is guarded optimism that coastal bats will survive as a reservoir of WNS resilient individuals (Ormsbee 2011a).

Roosting bats have not been seen in the barn. Bats may roost in the wood piled haphazardly under the east overhang of the barn, but this site has not been monitored for bat activity. According to Nieland (2012), there are probably more reports of winter discoveries of *Myotis* species from wood piles than anywhere else. This is likely due to the burning of wood during the winter.

Direct, Indirect, and Cumulative Environmental Effects

No Action Alternative

Spotted owls

The No Action Alternative would not affect spotted owls and their habitat because this species does not use the house and barn as habitat and retention of these buildings would not change the structure and function of the adjacent forest. Spruce Reach Island would continue to provide suitable nesting, roosting and foraging habitat for spotted owls subject to the growth and decay of the forest stand and natural disturbance events.

Marbled murrelets

The No Action Alternative would not affect marbled murrelets and their habitat because this species does not use the house and barn as habitat and retention of these buildings would not change the structure and function of the adjacent forest. Spruce Reach Island would continue to provide suitable nesting habitat for marbled murrelets subject to the growth and decay of the forest stand and natural disturbance events.

Bats

As long as portions of the Spruce Reach house remain, such as the south facing shake covered wall, roosting activity can be expected. Bats that continue to use the house as it deteriorates further will move to different areas in response to microclimate changes and they may need to abandon some preferred locations altogether (e.g. the roost in the hall, the exterior west side garage wall) due to collapse, new or increased water leaks, etc. Partial collapse could result in direct bat mortality.

The species level effects of the eventual loss of this multi-species roost are unknown. The information in Appendices B and C only shows the distribution of bats and not the abundance. A population estimate is not possible with the local or regional detection data. It is reasonable to assume however that gradual loss of the house would allow time for bat species to find other suitable habitat. In nature, bat roosts do not last forever, and bats are adaptable in finding and utilizing alternative roost sites within their foraging range (Nieland 2012), a distance of one to several miles depending on species (Appendix B, column 5).

The wooden footbridge slated for installation across Hinsdale Slough, a reasonably foreseeable action, may provide limited night roosting habitat, but it's unlikely to attract maternity use due to its small size and cool thermal characteristics (Nieland 2012). Annual garden tours conducted by BLM staff and volunteers will continue with little disturbance to roosting bats because tour participants are instructed to stay away from the walls and underside of the house.

Proposed Action Alternative

Spotted owls

The Proposed Action Alternative would not affect spotted owls and their habitat because demolition and construction activities would not occur near a known owl site and these activities would not remove suitable habitat for this species. Spruce Reach Island would continue to provide suitable nesting, roosting and foraging habitat for spotted owls subject to the growth and decay of the forest stand and natural disturbance events.

Marbled murrelets

According to the *Biological Opinion and Concurrence on the FY 2008-2013 Programmatic Suite of Activities Planned by the District and the Tribe (FWS Reference Number 13420-2008-F-0118)* (USDI FWS 2008), the Proposed Action Alternative would be considered No Effect for habitat modification or removal. The proposed activities would not remove suitable nesting habitat for marbled murrelets. Murrelets do not use the house and barn as habitat and demolition and construction activities would not change the structure and function of the adjacent forest. The two spruce trees that may be cut, topped or limbed to daylight the barn do not have limbs of sufficient size for nesting platforms, and they stand separate from the larger and older spruce trees in the contiguous stand to the west of the house and barn.

The Proposed Action Alternative would be considered Not Likely To Adversely Affect marbled murrelets due to disturbance. Partial or complete tree removal and construction at the barn would follow seasonal and daily timing restrictions because this area is within the 100 yard disruption distance of the occupied spruce stand. Heavy equipment operation and the use of power tools would not occur at the barn site during the critical breeding period of April 1st to August 5th. From August 6th through September 15th, potentially disrupting activities at the barn site would be confined to the time period between two hours after sunrise and two hours before sunset. The Spruce Reach house is greater than 100 yards from the spruce stand so there would be no timing restrictions for work at the house.

Bats

The Proposed Action Alternative includes conversion of an existing 980 square foot barn into a bat house and phased exclusion of bats from the Spruce Reach house. Additional habitat structures including a community bat roost and one or more Oregon wedge bat boxes are also proposed. Almost any bat that will roost in buildings or under bridges is a candidate to roost in a bat house, especially the big brown bat, little brown myotis, Yuma myotis and long-eared myotis (BCI 2011c). Although the occupancy of a bat house is never guaranteed, the Proposed Action Alternative includes several design features intended to maximize acceptance of the alternative habitat. Multiple or larger bat houses increase the odds that bats displaced from buildings will find adequate space (BCI 2004). Also, the proposed bat houses would be located immediately adjacent to the Umpqua River in an area of mixed agriculture and woodlands, and

the bat houses would be stained or painted dark to absorb heat. Bat Conservation International conducted a comprehensive survey of hundreds of people in the United States and Canada who had built or purchased one or more bat houses and they found an 83% occupancy rate for bat houses located within a quarter mile of a stream and river that received at least four hours of daily sun (BCI 1993). Occupancy rose to 92% if the bat houses were stained or painted dark. When BCI added another criterion, houses located in areas of mixed agriculture (mostly orchards), 100% of the 13 houses meeting all four conditions were occupied. According to BCI, bat houses are most likely to succeed in regions where bats are already attempting to live in buildings (BCI 2011b).

Sunlight exposure and internal air temperature information gathered at the barn during July 2012 when the sun was high in the sky and the trees south of the barn did not shade the structure indicates favorable conditions for creation of maternity roosting habitat. For maternity colonies in summer, internal bat house temperatures should stay between 80 and 100 degrees Fahrenheit for as long as possible (BCI 2011b). July exposure information gathered with automated light intensity loggers set to record every five minutes shows that the peak of the barn roof receives a similar amount of direct sunlight as the garage roof at the house and a similar amount of direct sunlight as a logger placed on a unshaded fence post in the field at the Dean Creek Elk Viewing Area. On the blue sky day of July 13th for example, the barn roof received direct sun from approximately 8:45 a.m. to 5:30 p.m., the garage roof received direct sun from approximately 9:10 a.m. to 5:50 p.m., and the fence post logger received direct sun from approximately 8:40 a.m. to 6:55 p.m. Automated air temperature loggers set to record at the same time as the light intensity loggers were deployed at three elevations within the barn. The nearly 9 hours of sunshine on the barn on July 13th created internal air temperatures from 80 to 107 degrees Fahrenheit at the peak of the barn roof from 9:05 a.m. to 6:45 p.m. Temperatures greater than 80 degrees persisted for hours even though the existing, light-colored galvanized roof reflects sunlight and the barn is an open air structure without windows, doors and gable ends. High roost temperatures would undoubtedly persist longer once the building is enclosed and internal baffles built to hold roosting bats slow air flow. Bats also benefit from a range of temperatures in a single house because this permits the bats to move vertically to find preferred roosting temperatures as exterior temperatures change (BCI 2004). On July 13th, internal air temperatures monitored midway down the south facing barn roof and above the barn door near the eave were approximately 20 to 30 degrees Fahrenheit cooler respectively than temperatures taken at the roof peak. Once the building is reconfigured to provide bat habitat an air temperature gradient from the peak to the eaves would still exist, but it would be less pronounced than the gradient measured in the existing, relatively open structure. Additional light intensity information is currently being gathered to determine if the trees south of the barn need to be felled, topped or just limbed to provide adequate solar exposure for the barn.

Development of alternative bat habitat associated with building removal has been tried on the Coos Bay District with some success, albeit at a smaller scale and involving a different mix of species. In 1998, four bat houses were placed at the New River Area of Critical Environmental Concern to mitigate the demolition of an old barn and ranch house. These bat houses were monitored between 1998 and 2001 and they showed various levels of occupancy. In 2001, the houses were monitored twice and bats were found in each structure during both visits. All boxes appeared to be used from time to time, with occupancy during all seasons of the year (Langenstein 2001a).

Development of alternative bat habitat associated with building removal is happening elsewhere in the Pacific Northwest and western Canada. The Willamette National Forest built a Pennsylvania bat condo (Figures A18 and A19) as mitigation at a site where houses are being removed and a long-eared myotis maternity colony is present. The structure near Oakridge, Oregon was completed in June 2012 and guano was found in October 2012 indicating occupancy (Ferland 2012a). Further monitoring is needed to determine which species are using the new structure. Two large Oregon wedge boxes that have been in place for years at the same site are being used by bats (Ferland 2012b). The Weaver bat condo within 75

feet of the Little Spokane River in Washington State shares the same Pennsylvania design as the Willamette bat house, and it was built in 2008 to provide habitat for little brown bats displaced from a nearby house. It's estimated that over 400 bats left the structure during an exit count in August 2011 (Rowan 2012a). The species exiting the house were not identified; however, California myotis and Yuma myotis calls were the primary calls recorded on adjacent acoustic detectors. Another bat condo was built in Creston Canada to replace an old, dilapidated barn that was a maternity roost for little brown and Yuma myotis for many years. The barn was collapsing, becoming less ideal as a roost, and it was a safety hazard in the area. As of May 2010, bats had taken up residence in a portion of the condo (Rowan 2012b).

Removal of siding shakes by hand would be done in a way that minimizes direct injury to bats. Some bats in the vicinity of the shakes being removed may leave their roost in response to noise and vibration. This stressor is expected to affect relatively few animals because the peak occupancy season will have passed. Shake removal would be concentrated in time (several hours during one or more days) and space (only a portion of the shakes would be removed in any one year), and alternative roost habitat would be available nearby.

Pregnant females and pups would not be present when shakes are removed between late September and early October so this activity would have no direct effect on maternity colonies using the Spruce Reach house. Bats Northwest (2011) recommends excluding bats from structures after late August because the pups have been weaned and are able to leave the roost on their own. Bat Conservation International (2011a) says exclusions should not be conducted between April and late August to avoid the maternity season. If swarming occurs at this site, it likely happens before late September (Ormsbee 2012a), so shake removal would have no direct effect on this activity.

Final exclusion of bats may not be 100% effective so there is the possibility that roosting individuals in internal crevices could be crushed during demolition. Project design features will be in place in an effort to limit direct mortality.

Reduced reproductive success is a possible indirect effect (i.e. an impact caused by the action but later in time or further removed in distance) of purposefully altering and eventually removing the existing house. Constructing larger, dedicated roosts that provide the security and warmth necessary for rearing pups, siting these roosts near the existing occupied structure, and completing alternative roosts before incremental changes are made to the Spruce Reach house would provide continuity of known roosts for breeding and may be expected to reduce stress to returning individuals. Bat Conservation International (2011d) says that bat houses are more likely to be used during their first summer if installed before the bats return in the spring, and BCI says that bat houses used in conjunction with excluding bats from buildings should be installed at least 2 to 6 weeks before eviction. Alternative roosting structures would be completed months before the first phase of habitat alteration at the Spruce Reach house and well before bats return in the spring.

It is possible that the number of roosting bats may actually increase with construction of alternative habitats. It is grossly estimated that there are about 100 to 200 bats of multiple species residing in the existing house during the active bat season (spring and summer) (Langenstein 2012a). As mentioned above, over 400 bats were tallied during an August 2011 exit count of a bat condo situated within 75 feet of the Little Spokane River in Washington (Rowan 2012a). According to BCI (2011b), a single chamber house can potentially shelter 50 bats, while a larger multi-chamber design can attract colonies of 200 or more bats. In a report on the success of bat houses based on surveys between 1998 and 2001, BCI (2004) found that 44% of large bat houses (15-foot to 50-foot linear roost space) were occupied with maternity use and the average number of bats was 225 (range 1 to 1500). The Spruce Reach barn and bat condo would have much greater than 50 feet of linear roost space (total length side to side of all roost chambers

combined), and they would be designed to maximize maternity roosting by creating hot attic space. Nieland (2012) estimates that the barn has a high (75%) chance of success of creating a new maternity roost.

Recreation developments outlined in the 2010 *Recreation Project Plan for the O.H. Hinsdale Garden Spruce Reach Island* (i.e. restrooms, picnic tables, benches, signs) would be located away from the house, barn and bat condo so as to not interfere with roosting activity.

Recreation

Affected Environment

Spruce Reach Island is adjacent to the pastures of the Dean Creek Elk Viewing Area. While the Elk Viewing Area pastures are closed to the public outside of designated parking areas and wildlife viewing areas, Spruce Reach Island is not closed to the public. A Federal Register notice specific to Spruce Reach Island prohibits hunting, shooting of firearms, and igniting fireworks and other explosive devices on the island. The purpose for the restrictions at Spruce Reach is to provide a means by which the Secretary of the Interior through the BLM may control and manage public use of the area to effectively implement management objectives and provide the watchable wildlife with habitat that is free from public disturbance or harassment (Office of the Federal Register 1995).

The culvert crossing that was installed between Highway 38 and Spruce Reach Island in summer 2010 (Appendix A, Figure A15) is considered a restricted use approach by the Oregon Department of Transportation (ODOT). This means that the approach is for emergency services, government, utility access or similar specific uses with limited traffic. Vehicle access is restricted with a lockable wooden gate and the crossing is posted No Parking. People have parked in the paved pullouts along Highway 38 near the culvert and used the crossing to access the island on foot. Public use of this road and the gated, restricted use road immediately to the east that leads to the parking area (Appendix A, Figure A2) requires approval from ODOT.

The Spruce Reach house does contribute to the aesthetic of the garden. A discussion of this contribution can be found in the 2010 *Spruce Reach Island Design Guide* (Dole 2010).

Direct, Indirect, and Cumulative Environmental Effects

No Action Alternative

Leaving the Spruce Reach house to deteriorate and collapse would not be compatible with the goal of providing public access for use and enjoyment of the O.H. Hinsdale Garden. It also would be incompatible with continued visits to the island on foot by members of the public who park along Highway 38. The BLM is responsible for the safety of the premises. People approaching the house to get a closer view of the structure or the adjacent plants could be injured by falling materials. The house would continue to serve as a public safety concern. Even as portions of the structure begin to sag, buckle and fall down, people may want to explore the interior of the building.

There are 7 rhododendrons, 19 camellias and 4 magnolias in the O.H. Hinsdale Garden that are growing immediately adjacent to the Spruce Reach house. Most plants are located on the north and east sides of the building. As the Spruce Reach house deteriorates the plants located next to the building might be damaged by falling pieces of wood, metal, glass, etc. Many of the plants adjacent to the house have become overgrown by horticultural standards and they have become top heavy. Building materials falling on these plants could break individual stems, knock entire plants over or break plants off at their base. There are no garden plants immediately adjacent to the barn.

This alternative would continue the aesthetic contribution of the house to the garden and its history. Aesthetics however would be diminished by efforts to isolate the public from the structure as it continues to deteriorate. The BLM would continue to offer yearly supervised public tours of the garden and participants would likely enjoy seeing the house in relation to the garden for as long as the house stands.

Proposed Action Alternative

The connection between the house and garden would be altered under this alternative once the house is removed. The BLM would continue to offer yearly supervised public tours of the garden, and take steps to open the site to day use once the house is removed.

Conversion of the barn to a bat house and construction of other alternative habitat structures would not affect garden-related recreational opportunities on the island. The barn is a contemporary structure that does not share the character of the house or have relevance to the garden setting.

Wild and Scenic Rivers

The Umpqua River (mouth to Kellogg) is an eligible wild and scenic rivers segment (USDI BLM 2008c). The potential classification is recreational, and the outstandingly remarkable values include: ecology, fish, geology, history, prehistory, recreation, and scenery.

The Proposed Action Alternative does not affect the free-flowing condition of the eligible reach, and it would not affect the ecology, fish, geology and prehistory of the area. Removal of the house would not affect the garden's potential eligibility for listing on the National Register of Historic Places, and public day use of the garden area following house removal would increase recreational opportunities along the lower Umpqua River. The change in scenery associated with house removal and construction at the barn is consistent with management direction in the 1995 Coos Bay District Resource Management Plan (p.41). Management activities may be seen but should not attract the attention of the casual observer. Changes should repeat the basic elements of form, line, color, texture, and scale found in the predominant natural features and the characteristic landscape. The Proposed Action Alternative would have a negligible effect on the vegetation along the river, and once completed the exterior of the barn would look similar to the exterior of the Spruce Reach house. The colors and textures of the community roosting structure and Oregon wedge bat box would blend with the surroundings.

Water Resources

Affected Environment

According to the Federal Emergency Management Agency Flood Insurance Rate Map No. 410059 0235 A, Spruce Reach Island is located within the 100-year flood plain of the Umpqua River. The base flood elevation on the east side of the island is approximately 15.5 feet relative to the National Geodetic Vertical Datum 1929 (NGVD 29). This water surface elevation is approximately 1.7 feet higher than the main floor of the Spruce Reach house and 3.7 feet higher than the shoulder of Highway 38 at the entrance to the garden. Water was inside the house during the 1964 flood (Appendix A, Figure A16) and inside the garage during the 1996 flood (USDI BLM 1997).

Peak flow information from the Umpqua River gaging station (USGS 14321000) near Elkton, Oregon indicates that flooding along the lower Umpqua happens relatively frequently. Flood water one to two feet deep inundated parts of Spruce Reach Island and flowed south over Highway 38 as recently as December 2005 (Appendix A, Figure A17). The discharge associated with this flooding was the 12th highest flow recorded during the 105-year history of the gaging station. The average recurrence interval or return period for this flow is less than 9 years, and this flow has a probability of approximately 11% of being equaled or exceeded in any given year.

During January 2011 the Umpqua River discharge at Elkton reached 120,000 cubic feet per second. This flow ranks between the 27th and 28th highest flows in the 105-year period of record at the gaging station. The average recurrence interval for this discharge is less than 4 years, and this flow has a probability of approximately 26% of being equaled or exceeded in any given year. This flow coupled with the tides brought the water surface elevation within one foot of the surface of the driveway (9.0 feet NGVD 29). The original owner of the house, O. Howard Hinsdale, recognized flooding as a threat to the property and raised the elevation of the house three times.

Direct, Indirect, and Cumulative Environmental Effects

No Action Alternative

The Spruce Reach house and the horse barn which sits lower on the island (approximately 9.0 feet NGVD 29) would remain susceptible to flooding. Relatively slow-moving flood waters may not knock the house and barn over outright, but repeated inundation could damage wood supports and weaken the buildings. When rehabilitation of the Spruce Reach house was being considered in the 1990s, Otak's proposed solution to the flood problem included raising the house an additional two to three feet and installing a reinforced concrete perimeter footing and stem wall designed to resist lateral pressure.

Proposed Action Alternative

The Spruce Reach house and the horse barn would remain susceptible to flooding. Relatively slow-moving flood waters may not knock the house and barn over outright, but repeated inundation could damage wood supports and weaken the buildings. Redesign of the barn would include attention to structural stability in a location that is periodically inundated, and roosting structures would be concentrated in the upper part of the building well above the 15.5-foot 100-year flood elevation. The bat condo and Oregon wedge bat box would be mounted on stout, treated wood or metal poles and the roosting chambers would be well above the 100-year flood elevation.

Eventual demolition of the house would not directly affect water resources. Erosion control measures (e.g. silt fence, straw bales) would be used if needed to isolate the work area from Hinsdale Slough and the Umpqua River. Because the house occupies such a relatively small portion of the floodplain (0.11 acre of the 56 acre island), its removal would not produce a measureable change in flood magnitude or duration along the Umpqua River.

Consistency of the Proposed Action with Aquatic Conservation Strategy Objectives

Components of the Aquatic Conservation Strategy

There are four components to the Aquatic Conservation Strategy (ACS): Riparian Reserves, Key Watersheds, Watershed Analysis and Watershed Restoration.

1) Riparian Reserves

The widths of the Riparian Reserves within the project area are two site potential tree heights for fish bearing streams and one site potential tree height for perennial and intermittent streams. The site potential tree height in the Lower Umpqua River 5th field watershed is 200 feet. This project is within a Riparian Reserve.

2) Key Watersheds

The proposed action is not located in a Key Watershed.

3) Watershed Analysis

The *Lower Umpqua Watershed Analysis* (USDA FS and USDI BLM 1997) covers the Spruce Reach Island area, but the document does not mention the Spruce Reach house or bats.

4) Watershed Restoration

Watershed restoration is a comprehensive, long-term program to restore watershed health and aquatic ecosystems, including the habitats supporting fish and other aquatic and riparian-dependent organisms. The program's most important components are control and prevention of road-related runoff and sediment production, restoration of the condition of riparian vegetation, and restoration of in-stream habitat complexity. The disposition of the Spruce Reach house, repurposing of the barn, and construction of other alternative habitat structures would not affect road-related runoff or the restoration of in-stream habitat complexity. Demolition and construction activities would not cause sediment to enter the waterways surrounding Spruce Reach Island and upland work on the island would not change the structure and function of the existing aquatic habitat. The eastern portion of Spruce Reach Island was developed over 50 years ago so construction or demolition activities would not affect native riparian vegetation other than the shrubs that now surround the barn and two relatively small spruce trees that may be felled, topped or limbed to daylight the reconfigured barn.

Existing Watershed Condition

The following acreages are approximate values based on GIS data.

Existing conditions in the Lower Umpqua River 5th field watershed:

- The BLM manages 1,750 acres out of 68,308 acres or 2.6% of the watershed.
- Approximately 1,211 acres or 69% of the BLM managed land in the watershed is in Riparian Reserves.
- The BLM controls less than 1 mile of the 214 miles of road in the watershed.
- Less than 3% of the 762 miles of streams in the watershed flow through federally managed land.

Aquatic Conservation Strategy Objectives and the Proposed Action

1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted.

Site Scale Evaluation

Short-Term/Long-Term

The proposed construction and demolition activities would not affect the distribution, diversity and complexity of watershed and landscape-scale features that ensure protection of aquatic systems. The house, barn and garden are located within the Riparian Reserves, but the near-stream environment along this portion of the Umpqua River was altered over 50 years ago by dredging, filling, land clearing and planting native and non-native vegetation. Removal of the house and activity associated with the barn and other habitat structures within the larger garden setting would not change the function of the current riparian area with respect to water quality.

5th Field Evaluation

Short-Term/Long-Term

The footprints of the house and barn occupy approximately one-seventh of an acre. Demolition of the house and bat house construction would not have a discernible effect on aquatic systems at the watershed scale.

2. Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.

Site Scale Evaluation

Short-Term/Long-Term

The eastern portion of Spruce Reach Island is a developed recreation site that is situated on the floodplain of the Umpqua River. The garden drains to the Umpqua River, Hinsdale Slough, an unnamed slough to the south, and surrounding jurisdictional wetlands. Demolition of the house and bat house construction would not change the existing connections between the floodplain, channels and wetlands.

5th Field Evaluation

Short-Term/Long-Term

The BLM manages less than 3% of the total acres in the Lower Umpqua River watershed, and the developed portion of Spruce Reach Island accounts for 0.3% of the BLM-managed land. Limited acreage and scattered federal parcels preclude the maintenance and restoration of connectivity within and between watersheds.

3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.

Site Scale Evaluation

Short-Term/Long-Term

Construction or demolition activities would not physically alter the shorelines, banks and channels located downslope from the house and barn. Equipment would not enter these areas and building materials/debris would not be stored in these areas.

5th Field Evaluation

Short-Term/Long-Term

There is no site scale impact to the physical integrity of the aquatic system so there would be no impact at the watershed scale.

4. Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.

Site Scale Evaluation
Short-Term/Long-Term

Removal of the septic tank and heating oil tank, if present, would possibly benefit water quality. No sheens or odors have been detected and the house has been unoccupied for at least 19 years so the possibility of oil or waste entering the water is believed to be low.

Water quality would not be affected by construction or demolition activities. Work would occur away from channels and wetlands, and equipment and building materials/debris would not enter waterways.

Felling all or portions of the beech tree and the two spruce trees south of the barn would not affect the summer water temperature of the Umpqua River because these trees do not shade the river when the sun is high in the sky and solar loading is most intense.

5th Field Evaluation
Short-Term/Long-Term

Demolishing the house, enclosing the barn, and constructing other alternative habitat would produce no measureable change in the water quality of the lower Umpqua River because work sites would be away from the water and debris would be removed from the island.

5. Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.

Site Scale Evaluation
Short-Term/Long-Term

Demolishing the house and keeping the barn would not affect the timing, volume, rate, and character of sediment input, storage and transport along the lower Umpqua River. The garden is vegetated with the exception of the asphalt driveway and runoff events mobilize little sediment from the surface of the island. The structures on Spruce Reach Island have nothing to do with larger sources of sediment including bank cutting along the river and deposition of sand and silt during overbank flooding.

5th Field Evaluation
Short-Term/Long-Term

Spruce Reach Island is located on a floodplain so it will continue to receive flood-borne sediment. Proposed activities would have no meaningful impact on the storage and transport of this material at the watershed scale.

6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetlands habitats to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.

Site Scale Evaluation

Short-Term/Long-Term

Activities analyzed in this EA would not affect the timing, magnitude, duration or spatial distribution of peak, high and low flows. The house and barn represent a minor amount of impervious surface that is buffered from the surrounding waterways, and these structures occupy such a small portion of the floodplain that they do not produce a measureable change in flood magnitude or duration.

5th Field Evaluation

Short-Term/Long-Term

The lower Umpqua River is very large in terms of size and discharge. Construction or demolition activities associated with two relatively small buildings and other alternative habitat structures in a watershed draining more than 3,500 square miles would have no impact on high and low flows contained within the river banks and peak flows that can be greater than 100,000 cubic feet per second.

7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.

Site Scale Evaluation

Short-Term/Long-Term

The house and barn occupy such a small portion of the floodplain that their presence or absence would not produce a measurable change in flood magnitude or duration along the lower Umpqua River. Water table elevations in the wetlands surrounding the garden are driven by river flow, tides and groundwater discharge. The buildings within the garden have no influence on water levels in the wetlands along the margins of the Umpqua.

5th Field Evaluation

Short-Term/Long-Term

The timing, variability and duration of floodplain inundation and the water table elevation in wetlands is driven by factors not associated with the buildings on Spruce Reach Island; therefore, actions analyzed in this EA would have no impact at the watershed scale.

8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.

Site Scale Evaluation

Short-Term/Long-Term

The eastern portion of Spruce Reach Island is a developed recreation site. The species composition and structural diversity of the plant communities are different from other more natural riparian areas along the Umpqua by design. The existing vegetation does provide thermal regulation and nutrient filtering, and it prevents surface erosion. Large woody debris in the form of spruce trunks and branches are still present to the west and north of the garden. Removing the house would not change the surrounding vegetation or the functions provided by the vegetation.

5th Field Evaluation
Short-Term/Long-Term

Approximately 69% of the Coos Bay District managed land in the Lower Umpqua River watershed is in Riparian Reserves. Protection of these Riparian Reserves ensures the maintenance and restoration of native plant communities and the functions that they provide to the aquatic environment in a relatively limited area because less than 3% of the approximately 762 miles of streams in the watershed flow through federally managed land. Activities analyzed in this EA would not change the species composition or structural diversity of the native vegetation within the watershed in any meaningful way.

9. *Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.*

Site Scale Evaluation
Short-Term/ Long-Term

Activities analyzed in this EA would have little effect on habitat that supports native plants and riparian-dependent species. Following demolition and removal, bare ground where the house now stands would be covered with native seed mix.

5th Field Evaluation
Short-Term/Long-Term

The Coos Bay District manages a relatively small portion of the riparian areas found throughout the Lower Umpqua River watershed. Riparian Reserves ensure the maintenance and restoration of riparian-dependent resources. Maintaining and restoring habitat to support well-distributed populations of native plants and riparian-dependent species across the landscape is complicated by different management objectives and methods between agencies, corporations and smaller private landowners.

Issues Not Analyzed in Detail

Due to a lack of concern expressed by scoping respondents, adequacy of best-management practices and policy, and the limited intensity and scope of effects on the affected resource, the items below are excluded from detailed comparative analysis as directed by CEQ regulation 43 C.F.R. § 46.310(e) and other sections.

Botany

Removal of the house would not affect Henderson's checkermallow (*Sidalcea hendersonii*), a Bureau sensitive species, because it is located on the opposite bank of Hinsdale Slough east of the Spruce Reach house. Construction at the barn would not affect any special status plant species (i.e. federally listed or proposed or Bureau sensitive species) because there are none within the work zone. Vegetation within 20 feet of the barn would be cleared prior to construction and there are no special status plant species within at least 50 feet of the structure.

Fisheries

The proposed action would not affect fish or fish habitat. Construction and demolition activities associated with the proposed action would not alter the bed and banks of any waterway, degrade water quality, increase summer water temperatures, or remove large woody debris from the project site.

Unaffected Resources

None of the following critical elements of the human environment are located in the project area or within a distance to be affected by implementation of either alternative:

- Farmlands, Prime or Unique
- Areas of critical environmental concern
- Wilderness

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Chapter 6 List of Preparers

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Chapter 7 List of Agencies and Persons Contacted

The following public agencies and interested parties were notified directly with Scoping Letters:

Confederated Tribes of Coos, Lower Umpqua and Siuslaw
U.S. Representative Peter DeFazio
U.S. Fish and Wildlife Service
Pat Ormsbee, Forest Service Region 6 and BLM Bat Specialist
Rob Huff, Conservation Planning Coordinator, BLM Oregon State Office
Cheron Ferland, Wildlife Biologist, Middle Fork Ranger District, Willamette National Forest
Diane Odegard, Bat Conservation International
Governor's Natural Resource Office
Oregon Department of Environmental Quality
Oregon Department of Fish and Wildlife
Oregon Department of Forestry
Oregon Parks and Recreation Department
Oregon State Historic Preservation Office
Oregon Division of State Lands
Oregon Water Resources Department
Douglas County Board of Commissioners
Ron Yockim, Attorney for Douglas County
Association of O&C Counties
Klamath-Siskiyou Wildland Center
Oregon Wild
Douglas Timber Operators
Cascadia Wildlands Project
Coast Range Association
Umpqua Watersheds, Inc
Adjacent landowners
Numerous private citizens

Appendix A Figures

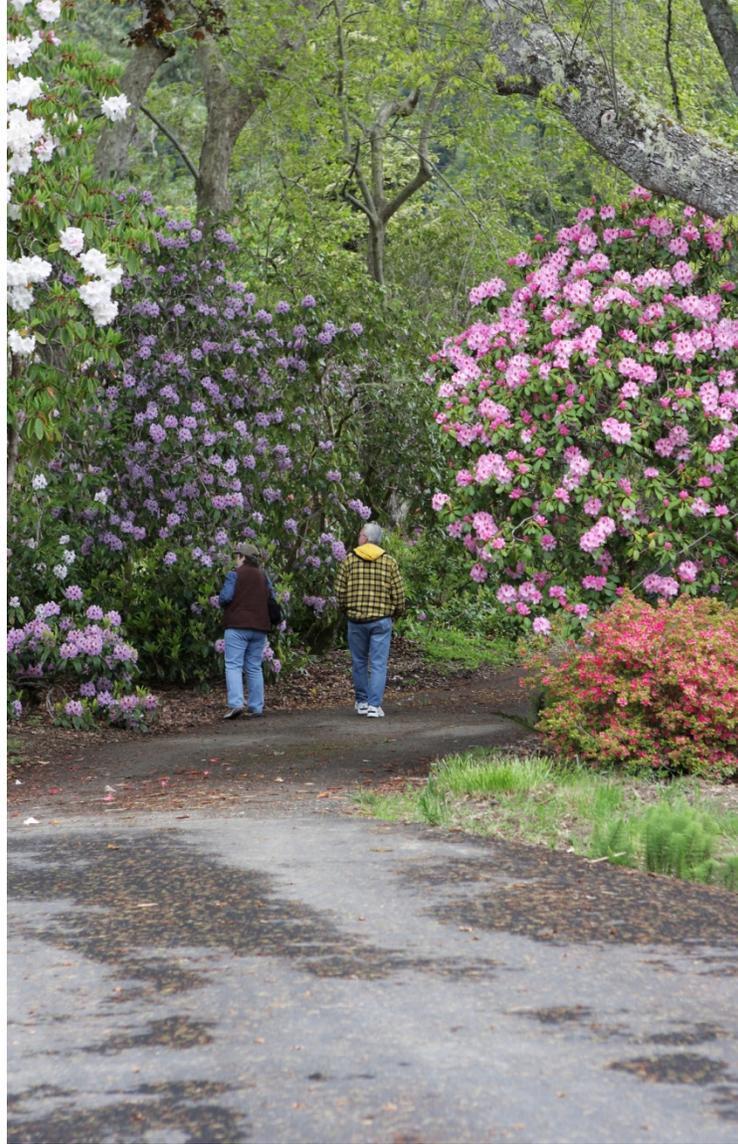


Figure A1. Entrance to O.H. Hinsdale Garden. Photo taken May 21, 2011.



Figure A2. Annotated aerial photo showing the public use zone and extent of the O.H. Hinsdale Garden on Spruce Reach Island.

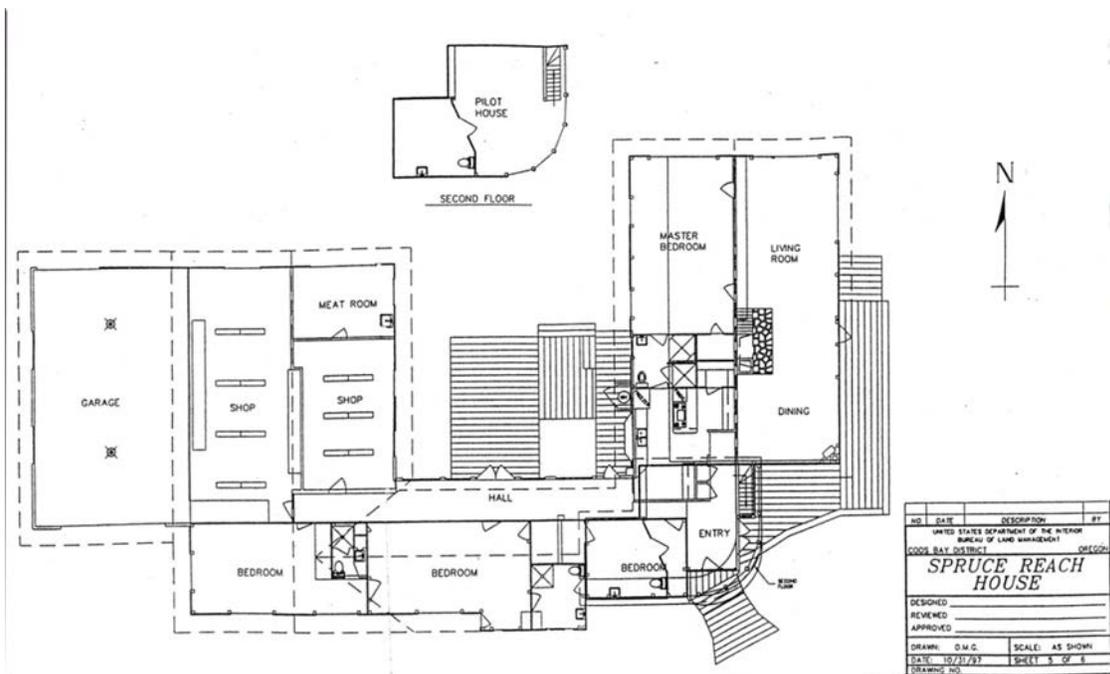


Figure A3. Floor plan of the Spruce Reach house (OTAK 1998).



Figure A4. The 980 square foot horse barn northwest of the Spruce Reach house.



Figure A5. Fascia and soffit deterioration on the north side of the garage and shop. Photo taken February 11, 2011.



Figure A6. Large plate glass windows in the hall have been replaced with plywood to prevent injury from falling glass and limit access to the house. Photo taken February 9, 2012.



Figure A7. East side hall window that dropped from its frame during 2011 due to rot. Photo taken December 1, 2011.



Figure A8. Window frame deterioration west of the hall doors and plywood covering an opening where a window dropped from its frame in 2009. Photo taken December 1, 2011.



Figure A9. Condition outside of the kitchen and bathroom on the north side of the house. Photo taken October 19, 2010. The water heater has since been removed.



Figure A10. Fungal fruiting bodies sprouting on the water damaged and sagging floor in the pilot house. Photo taken February 13, 2012 by Jim Nieland. In July 2012, a portion of this damaged floor collapsed into the hall below (narrow passageway in Figure A11) leaving an approximately 4 square foot hole open between the first story and second story of the house.



Figure A11. Water damaged flooring in the hall (separated flooring bottom left and discolored carpet in narrow passageway), and sagging ceiling (narrow passageway) below water damaged pilot house floor. A big brown bat roost site

is marked by the dark guano pile. Roosting also occurs where the shake wall meets the ceiling on the right. No bats were present when this photo was taken on June 3, 2011.



Figure A12. Water leaking into the garage has weakened the trusses and damaged the walls. Photo taken February 13, 2012 by Jim Nieland.

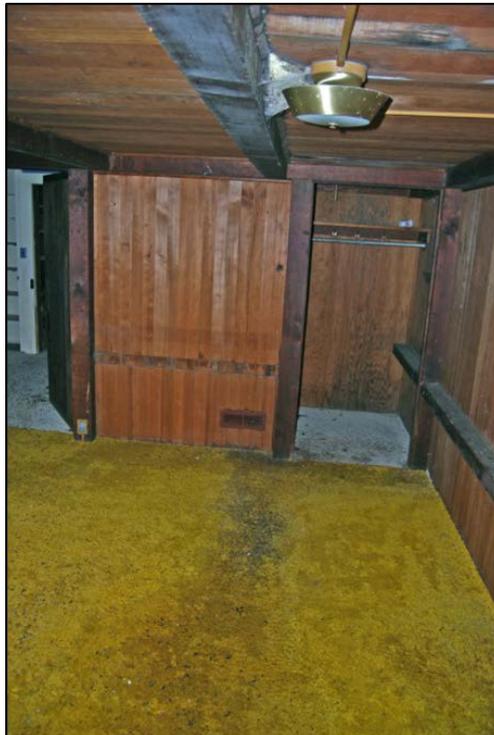


Figure A13. Bat roost in the bedroom west of the entry marked by a stripe of guano on the carpet beneath the ceiling beam. No bats were present when this photo was taken on February 13, 2012 by Jim Nieland.



Figure A14. Interior of the water heater enclosure pictured in Figure A9 showing bat guano hanging from the walls and on ledges. No bats were present when this photo was taken on February 13, 2012 by Jim Nieland.



Figure A15. Tidally-influenced culvert crossing to Spruce Reach Island. Highway 38 is to the left out of the picture. Wood gate restricts vehicle access. Photo taken October 19, 2010.



Figure A16. December 1964 flooding on the Umpqua River. Dean Creek enters the river at the bottom of the picture and Spruce Reach Island is near the top. Photo courtesy of the Oregon Department of Transportation.



Figure A17. December 2005 flooding at the entrance to the O.H. Hinsdale Garden. The wooden bridge has been replaced with a culvert.



Figure A18. Pennsylvania bat condo built near Oakridge, Oregon as part of the Willamette National Forest Flat Creek Building Disposition Project (Ferland 2012a).



Figure A19. Inside of bat condo pictured in Figure A18.



Figure A20. Oregon wedge bat box near Oakridge, Oregon (Ormsbee 2012b).

Appendix B Bat Information Summary Spreadsheet

The following spreadsheet contains information summarized from several sources about the approximate range, roosting habit, life history, and current threats to the seven bat species discussed in this environmental assessment. The two occurrence columns on the far right were populated with data summarized from the following:

- Coos Bay District BLM 2011 Annual Bat Monitoring Summary Report (Langenstein 2011b);
- Coos Bay District BLM 2010 Annual Bat Monitoring Summary Report (Langenstein 2010b);
- Coos Bay District BLM 2009 Annual Bat Monitoring Summary Report (Langenstein 2009);
- Coos Bay District BLM Bat Monitoring/Strategic Survey Summary Report (Langenstein 2004);
- Update on bat use of the Spruce Reach Island house e-mail message (Wall 2001a);
- Bat use of the Spruce Reach Island house e-mail message (Wall 2001b);
- Bat Acoustic Data Analysis Request (Langenstein 2012b);
- Bat capture data form August 24th (Langenstein 1998);
- Appendix IV bat trapping/netting data sheet May 18th (Langenstein 2001b);
- Appendix IV bat trapping/netting data sheet August 21st (Langenstein 2001c);
- Appendix IV bat trapping/netting data sheet August 23rd (Langenstein 2001d).

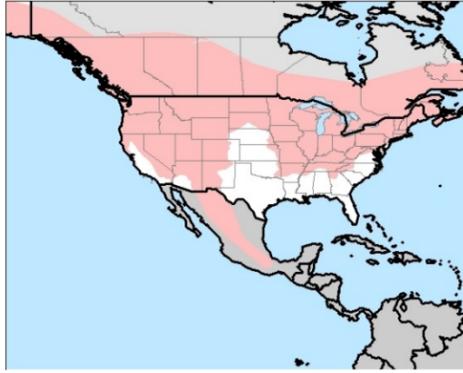
The reports prepared by Steve Langenstein above contain capture and acoustic data from May through September.

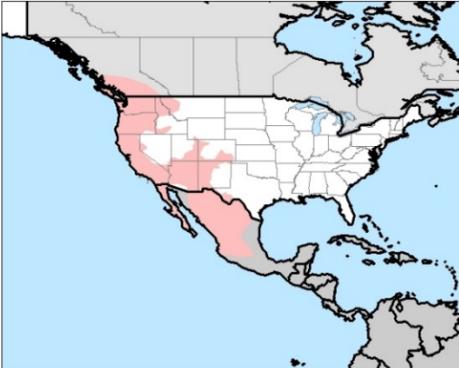
Acoustic detection is listed as AD (#) in the two occurrence columns of the spreadsheet. If a species is listed as AD (5) for example, this means that 5 bat vocalizations were identified by consensus with acoustic analysis software. These 5 calls may be from 5 different bats or only one bat recorded 5 times. Possible acoustic detection (PAD) is used if there is some doubt about a recorded call. For example, the 2011 Baker Cave survey produced eighteen calls that showed the possible presence of 5 species of bats. In this case, PAD is used in the spreadsheet to capture the possible presence of a species.

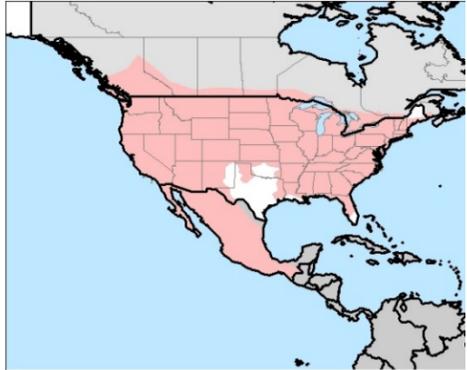
The following caveats apply to the bat data for Spruce Reach Island contained in the Langenstein reports listed above:

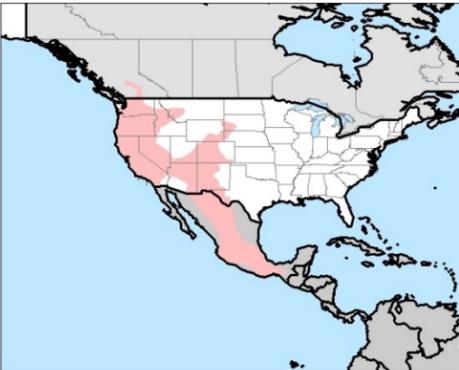
- The data was collected for the purpose of identifying presence of bats and to determine probable diversity. Monitoring is not expected to determine every species of bat at a location.
- A total population analysis is not possible with the detection data.
- Comprehensive surveys with the goal of determining bat population estimates are generally considered very inaccurate and damaging to the bat species involved in structures like the Spruce Reach house because the bats are not easily visible within the roost (Kunz 1988).
- Comparing the results of captures from the Spruce Reach site to captures at other sites monitored within the Coos Bay District would not accurately portray the variability between the habitat conditions. That is, there are no other capture sites on District which have a building as the primary habitat structure, and there are no other sites where a major river (Umpqua) is directly adjacent to the monitoring site. For example, the tidally influenced lower main stem Umpqua River has different ecological values than the smaller, upriver site monitored on the Sixes River.
- Nets had to be closed during the 2004 and 2009 Spruce Reach Island capture surveys for approximately one hour due to extremely high capture rates in a short period of time.
- The status of a species is not determined by the results of these surveys.

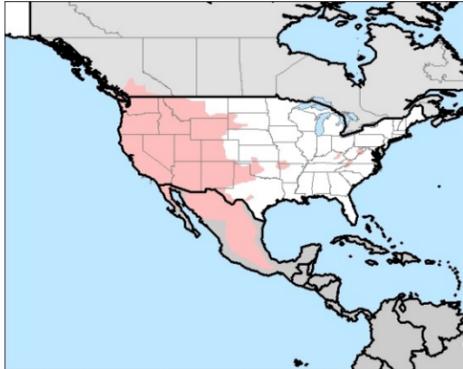
- There are several species of bats which have not been captured at the Spruce Reach site or at the other monitoring sites within the Coos Bay District, and these species are not rare or special status. These species simply don't occur near the monitoring sites or are not captured in the nets because of their flight patterns or roosting locations.
- Capturing any bat simply confirms that a bat was captured. Not capturing a bat does not tell you that a species of bat is absent; it only means that it was not trapped during that sampling effort. It takes multiple nights of surveys to determine the full diversity of bat species which occur at a location.
- Acoustic data should not be used for population estimates. This is because not all bat species flying within an area being sampled are necessarily recorded, and single bats can be recorded multiple times. Acoustic data may represent a sample of the bat species which likely occur within a 2.5 kilometer circle around the point where the recordings occurred.

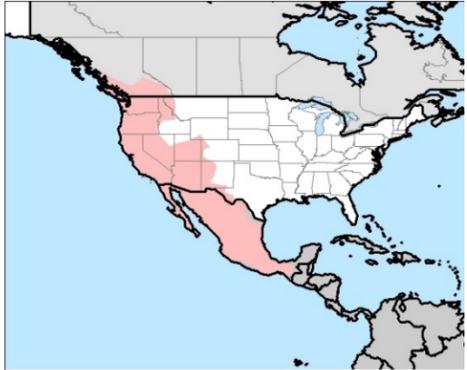
Common name	Latin	Approximate Range (National Atlas 2003)	Roosting Habit (Christy and West 1993 unless otherwise noted)	Life History (WBWG 2005 unless otherwise noted)	Status	Current Threats (WBWG 2005 unless otherwise noted)	Occurrence at Spruce Reach Island	Occurrence elsewhere within District boundary
Little brown myotis	<i>Myotis lucifugus</i>		<p>Buildings: maternity, solitary Bridges: maternity, solitary Caves & mines: maternity, hibernacula Bark: solitary Rock crevices: solitary Snags: maternity</p> <p>The WBWG (2011a) lists this bat as a multiple habitat species (as opposed to a tree-roosting, cliff-roosting or cave-roosting bat).</p>	<p>Among forest bats, the little brown bat is an ecological generalist exploiting a wide variety of natural and man-made roost sites. This species is especially associated with humans, often forming nursery colonies containing hundreds, sometimes thousands of individuals in buildings, attics, and other man-made structures (BCI 2011e).</p> <p>Summer maternity colony sites, consisting largely of reproductive females and dependent young, include tree cavities, caves and human-occupied structures. Fidelity to physically stable day and night roost sites is strong and individuals return for many years.</p> <p>Daily foraging movements are likely in the 1 to 10 kilometer / 0.6 to 6.2 mile range.</p>	<p>Region 1 (from the coast to the Cascades between southern Oregon north into British Columbia): Most of the existing data support stable populations of this species, and the potential for major changes in status in the near future is considered unlikely. While there may be localized concerns, the overall status of the species is believed to be secure (WBWG 2011a).</p> <p>Status as of 2008: Least Concern because of its wide distribution, occurrence in a number of protected areas and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category. Population trend: stable (IUCN 2012). This 2008 status assessment predates extensive mortality of the little brown myotis in eastern North America due to white-nose syndrome (see next column).</p>	<p>Reduction in snag density and recruitment by timber harvest. This species often occupies structures and is vulnerable to pest control operations.</p> <p>White-nose syndrome (WNS) is a disease affecting hibernating bats. WNS is associated with extensive mortality of bats in eastern North America. First documented in New York in the winter of 2006-2007, WNS has spread rapidly across the eastern United States and Canada, and the fungus associated with WNS has been detected as far west as Oklahoma (USDI FWS 2010).</p>	<p>2011 Aug 25: acoustic detection (AD) (5). 2010 Aug 22: AD (22). 2009 May 8: AD (10). Jun 23: 26 little brown (Mylu) or Yuma myotis (Myyu) captured. Jun 23: AD (14). 2004 Aug 31: 4 Mylu or Myyu captured. 2001 Aug 23: 2 Mylu captured.</p>	<p>2011 Jun 23: Bandon Marsh (BM) Smith Tract plantation AD (6). Jun 23: BM Fahy Creek AD (1). Jul 20: BM Bunkhouse AD (2). Jul 20: BM Overlook AD (25). Aug 18: Baker Cave possible acoustic detection (PAD). Aug 30: BM Overlook AD (6). 2010 Jul 8: Sixes Campground: 3 little brown (Mylu) or Yuma myotis (Myyu) captured. Jul 8: Bea Creek AD. Jul 20: Garbage Dump Pond Remote PAD (3). Jul 22: Otter Creek: 3 Mylu or Myyu captured. Jul 27: Big Creek: 14 Mylu or Myyu captured. Jul 27: West Fork Otter Creek PAD (9). Jul 29: Middle Creek Recreation Site: 5 Mylu or Myyu captured. Aug 24: Vincent Creek Guard House PAD. Aug 25: Baker Cave PAD. 2009 Jun 16: Sixes Campground: 2 Mylu or Myyu captured. Jun 17: Middle Creek: 9 Mylu or Myyu captured. Jun 17: Middle Creek AD (2). Jul 7: Otter Creek: 3 Mylu or Myyu captured. Jul 9: Otter Creek AD (7). Jul 16: Garbage Dump Pond AD (1). Aug 11: Big Creek: 14 Mylu or Myyu captured. Aug 11: Big Creek AD (12). Aug 17: Middle Creek Recreation Site: one Mylu or Myyu captured. 2004 Jun 21: COO23A: 15 Mylu or Myyu captured. Jun 22: COO24A: 2 Mylu or Myyu captured. Jul 6: COO24B: 2 Mylu or Myyu captured. Jul 7: COO23B: 2 Mylu or Myyu captured. Jul 19: COO23A: 4 Mylu or Myyu captured. Jul 20: COO21A: 7 Mylu or Myyu captured. Jul 21: COO24A: one Mylu or Myyu captured. Jul 22: COO21B: one Mylu or Myyu captured. Jul 26: Rowland Creek: one Mylu or Myyu captured. Jul 27: COO22A: one Mylu or Myyu captured. Aug 3: COO23B: 7 Mylu or Myyu captured. Aug 4: Hunter Creek: one Mylu or Myyu captured. Aug 17: COO22A: one Mylu or Myyu captured. Aug 18: COO21B: one Mylu or Myyu captured. Aug 30: COO21A: 3 Mylu or Myyu captured. Sep 7: Park Creek Bridge: one Mylu or Myyu captured.</p>

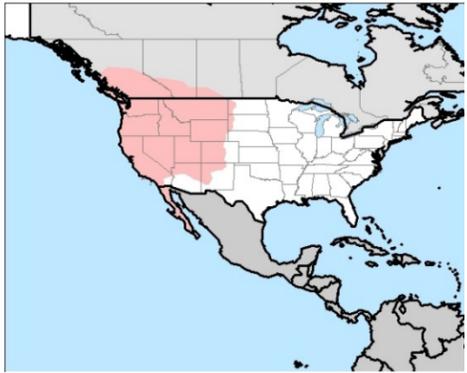
Common name	Latin	Approximate Range (National Atlas 2003)	Roosting Habit (Christy and West 1993 unless otherwise noted)	Life History (WBWG 2005 unless otherwise noted)	Status	Current Threats (WBWG 2005 unless otherwise noted)	Occurrence at Spruce Reach Island	Occurrence elsewhere within District boundary
Yuma myotis	<i>Myotis yumanensis</i>		<p>Buildings: maternity, solitary, colonial (males and nonbreeding females). Bridges: maternity, solitary Caves & mines: maternity, hibernacula Rock crevices: (Kunz and Reynolds 2003) Trees: (WBWG 2005)</p> <p>The WBWG (2011a) lists this bat as a multiple habitat species (as opposed to a tree-roosting, cliff-roosting or cave-roosting bat).</p>	<p>Yuma myotis occasionally roost in mines and caves, but they are most often found in buildings or bridges. Tree cavities were probably the original sites for most nursery colonies. These bats typically forage over water in forested areas (BCI 2011e).</p> <p>Mating is typically in the fall and females give birth to one young from mid-summer to mid-summer in maternity colonies that may range up to several thousand individuals; males tend to roost singly in the summer.</p>	<p>Region 1 (from the coast to the Cascades between southern Oregon north into British Columbia): Most of the existing data support stable populations of this species, and the potential for major changes in status in the near future is considered unlikely. While there may be localized concerns, the overall status of the species is believed to be secure (WBWG 2011a).</p> <p>Status as of 2008: Least Concern because of its wide distribution, presumed large population, occurrence in a number of protected areas, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category (ICUN 2012).</p> <p>Species of Concern: taxa whose conservation status is of concern to the U.S. Fish and Wildlife Service, but for which further information is still needed. Such species receive no legal protection and use of the term does not necessarily imply that a species will eventually be proposed for listing (USDI FWS 2012a).</p>	<p>Disturbance of maternity roosts in caves and buildings. This species frequently occurs in man-made structures and is therefore vulnerable to destructive pest control activities.</p>	<p>2011 Aug 25: AD (4). 2010 Aug 22: AD (7). 2009 May 8: AD (2). Jun 23: 26 little brown (Mylu) or Yuma myotis (Myyu) captured. Jun 23: AD (6). Sep 21: AD (1). 2004 Aug 31: 4 Mylu or Myyu captured. 2001 May 18: 2 Myyu captured. Aug 23: 10 Myyu captured. 1998 Aug 24: 7 Myyu captured.</p>	<p>2011 Jul 20: Bandon Marsh (BM) Bunkhouse AD (1). Jul 20: BM Overlook AD (3). Aug 18: Baker Cave possible acoustic detection (PAD). Aug 22: Vincent Creek Guard Station AD (1). Aug 30: BM Overlook AD (1). 2010 Jul 6: Middle Creek: one bat captured. Jul 8: Sixes Campground: 3 Mylu or Myyu captured. Jul 20: Garbage Dump Pond Remote PAD (4). Jul 22: Otter Creek: 3 Mylu or Myyu captured. Jul 22: Road 073 Wetland AD (7). Jul 27: Big Creek: 14 Mylu or Myyu captured. Jul 27: West Fork Otter Creek PAD (8). Jul 29: Middle Creek Recreation Site: 5 Mylu or Myyu captured. S Bridge Remote Site PAD (1). Aug 24: Vincent Creek Guard House PAD. 2009 Jun 16: Sixes Campground: 2 Mylu or Myyu captured. Jun 17: Middle Creek: 9 Mylu or Myyu captured. Jun 17: Middle Creek AD (1). Jul 7: Otter Creek: 3 Mylu or Myyu captured. Jul 9: Otter Creek AD (4). Jul 16: Garbage Dump Pond ADS (3). Aug 11: Big Creek AD (1). Aug 11: Big Creek: 14 Mylu or Myyu captured. Aug 17: Middle Creek Recreation Site: one Mylu or Myyu captured. Sep 17: Vincent Creek Guard House PAD. 2004 Jun 21: COO23A: 15 Mylu or Myyu captured. Jun 22: COO24A: 2 Mylu or Myyu captured. Jul 6: COO24B: 2 Mylu or Myyu captured. Jul 7: COO23B: 2 Mylu or Myyu captured. Jul 19: COO23A: 4 Mylu or Myyu captured. Jul 20: COO21A: 7 Mylu or Myyu captured. Jul 21: COO24A: one Mylu or Myyu captured. Jul 22: COO21B: one Mylu or Myyu captured. Jul 26: Rowland Creek: one Mylu or Myyu captured. Jul 27: COO22A: one Mylu or Myyu captured. Aug 3: COO23B: 7 Mylu or Myyu captured. Aug 4: Hunter Creek: one Mylu or Myyu captured. Aug 17: COO22A: one Mylu or Myyu captured. Aug 18: COO21B: one Mylu or Myyu captured. Aug 30: COO21A: 3 Mylu or Myyu captured. Sep 7: Park Creek Bridge: one Mylu or Myyu captured.</p>

Common name	Latin	Approximate Range (National Atlas 2003)	Roosting Habit (Christy and West 1993 unless otherwise noted)	Life History (WBWG 2005 unless otherwise noted)	Status	Current Threats (WBWG 2005 unless otherwise noted)	Occurrence at Spruce Reach Island	Occurrence elsewhere within District boundary
Big brown bat	<i>Eptesicus fuscus</i>		<p>Buildings: maternity, hibernacula, solitary, colonial (males and nonbreeding females). Common maternity roosts can be found in buildings, barns, bridges, and even bat houses (BCI 2011e)</p> <p>Bridges: maternity, solitary</p> <p>Caves & mines: maternity, hibernacula, solitary</p> <p>Bark: solitary</p> <p>Rock crevices: solitary</p> <p>Snags: maternity</p> <p>The WBWG (2011a) lists this bat as a multiple habitat species (as opposed to a tree-roosting, cliff-roosting or cave-roosting bat).</p> <p>Big brown bats are known to travel up to 4.1 kilometers / 2.5 miles to foraging habitat (Brigham and Fenton 1986 cited in Christy and West 1993).</p>	<p><i>E. fuscus</i> is a colonial species, with the size of maternity colonies varying from about a dozen to several hundred. The species is well known for its tendency to roost in man-made structures including buildings, mines and bridges, but it has also been found in caves and crevices in cliff faces. Tree roosting has been documented in forested landscapes. Bridges are commonly used as night roosts by males and pregnant and post-lactating females. In the west, <i>E. fuscus</i> is known to hibernate in relatively small numbers in caves, buildings and mines. <i>E. fuscus</i> forages within a few kilometers of its roost. Big brown bats mate in the fall and the winter, and each female produces one young in early summer. The young are volant or able to fly in three to four weeks.</p>	<p>Perceived as relatively common in many localities. It is the second most common bat found in urban areas in Washington and Oregon (WBWG 2005).</p> <p>Region 1 (from the coast to the Cascades between southern Oregon north into British Columbia): Most of the existing data support stable populations of this species, and the potential for major changes in status in the near future is considered unlikely. While there may be localized concerns, the overall status of the species is believed to be secure (WBWG 2011a).</p> <p>Status as of 2008: Least Concern because of its wide distribution, presumed large population, occurrence in a number of protected areas, tolerance to some degree of habitat modification, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category (IUCN 2012).</p>	<p>Roost disturbance and destruction including eradication of building dwelling colonies by pest control operations, and removal of important roost trees in timber harvest operations.</p>	<p>2011 Aug 25: AD (10).</p> <p>2010 Aug 22: AD (42).</p> <p>2009 May 8: AD (2). Jun 23: 7 bats captured.</p> <p>2004 Aug 31: 20 bats captured.</p> <p>2001 May 18: 2 bats captured. Aug 21: one bat captured. Aug 23: 8 bats captured. 1998 Aug 24: 18 bats captured.</p>	<p>2011 Jun 23: BM Fahy Creek AD (1). Jul 20: BM Overlook AD (1).</p> <p>2010 Jul 6-7: Middle Creek: 3 bats captured. Jul 8: Bea Creek AD. Jul 9: Otter Creek AD (1). Jul 16: Garbage Dump Pond: one bat captured. Jul 27: West Fork Otter Creek PAD (4). Aug 24: Vincent Creek Guard House PAD. Aug 25: Baker Cave PAD. Sep 17: Vincent Creek Guard House PAD. Unk date: S Bridge Remote Site PAD (3).</p> <p>2004 Jul 22: COO21B: one bat captured. Jul 27: COO22A: one bat captured. Aug 3: COO23B: one bat captured. Aug 16: COO24B: one bat captured. Aug 17: COO22A: one bat captured.</p>

Common name	Latin	Approximate Range (National Atlas 2003)	Roosting Habit (Christy and West 1993 unless otherwise noted)	Life History (WBWG 2005 unless otherwise noted)	Status	Current Threats (WBWG 2005 unless otherwise noted)	Occurrence at Spruce Reach Island	Occurrence elsewhere within District boundary
Fringed myotis	<i>Myotis thysanodes</i>		<p>Buildings: maternity, hibernacula, solitary. Buildings: uncommon or rarely documented, atypical roost habitat (USDA FS 2006) Bridges: solitary Caves & mines: maternity, hibernacula, solitary Rock crevices: solitary, hibernacula</p> <p>The WBWG (2011a) lists this bat as a multiple habitat species (as opposed to a tree-roosting, cliff-roosting or cave-roosting bat).</p> <p>These bats are not caught commonly in great numbers, but may be widely dispersed. Night and day roosts include caves, mines and buildings that are typically abandoned (BCI 2011e).</p> <p>Roosting in decadent trees and snags, particularly large ones, is common throughout its range in the western United States and Canada (WBWG 2005).</p>	<p>Maternity colonies range from 10 to 2,000 individuals, though large colonies are exceedingly rare. One young per female is born from May to July, and young are able to fly in 20 days. The fringed myotis has been observed on the Coos Bay District as individual bats or small groups of three bats (Langenstein 2005).</p> <p>There are periodic changes in roost sites within a maternity roost because of thermoregulatory requirements of the bats (i.e. clusters of bats move in response to temperature changes in different parts of the roost (IUCN 2012).</p> <p>Relatively long commuting distances (13 kilometers / 8 miles one way) have been documented for post-lactating females between roost sites and foraging areas (Langenstein 2005).</p>	<p>Region 1 (from the coast to the Cascades between southern Oregon north into British Columbia): This species should be considered the highest priority for funding, planning, and conservation actions based on available distribution, status, ecology, and known threat information. This species is imperiled or at high risk of imperilment (WBWG 2011a).</p> <p>Status as of 2008: Least Concern because of its wide distribution, occurrence in a number of protected areas and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category (IUCN 2012).</p> <p>Global Rank: Not rare and apparently secure, demonstrably widespread, abundant and secure. National Rank: Not rare and apparently secure, demonstrably widespread, abundant and secure. Oregon Biodiversity Information Center (ORBIC) State Rank: Taxa that are threatened with extirpation or presumed to be extirpated from the state of Oregon; these are often peripheral or disjunct species which are of concern when considering species diversity within Oregon's borders. Oregon Department of Agriculture and Oregon Department of Fish and Wildlife State Status: State Vulnerable: species facing one or more threats to their population and/or habitats; not currently imperiled with extirpation. Special Status Species Category: Sensitive in Oregon only. Documented occurrence on Burns, Coos Bay, Klamath Falls, Lakeview, Medford, Prineville, Roseburg, and Vale-OR BLM Districts. Suspected occurrence on Eugene and Salem BLM Districts (USDI BLM 2011).</p> <p>Species of Concern: taxa whose conservation status is of concern to the U.S. Fish and Wildlife Service, but for which further information is still needed. Such species receive no legal protection and use of the term does not necessarily imply that a species will eventually be proposed for listing (USDI FWS 2012a).</p> <p>Fringed myotis is "recognized by several federal and state agencies as a sensitive species that is apparently rare and at risk, based on scant knowledge of local, regional, and national populations" (Keinath 2004).</p>	Loss or modification of roosting habitat. Threatened by closure or renewed activity at abandoned mines, recreational caving and mine exploration, loss of current and future large, decadent trees, and replacement of buildings and bridges with non-bat-friendly structures.	<p>2010 Aug 22: AD (4). 2009 Jun 23: 2 bats captured. 2004 Aug 31: One bat captured.</p>	<p>2010 Jul 8: Bea Creek AD. Jul 20: Garbage Dump Pond Remote PAD (3). Jul 22: Road 073 Wetland PAD (1). Jul 27: West Fork Otter Creek PAD (1). Aug 24: Vincent Creek Guard Station PAD. 2009 Jun 16: Sixes Campground: one bat captured. Jul 7: Otter Creek: one bat captured. Jul 10: Alder Creek Roadway AD (1). Sep 24: Baker Cave AD. 2004 Jul 22: COO21B: one bat captured. Aug 16: COO24B: one bat captured.</p>

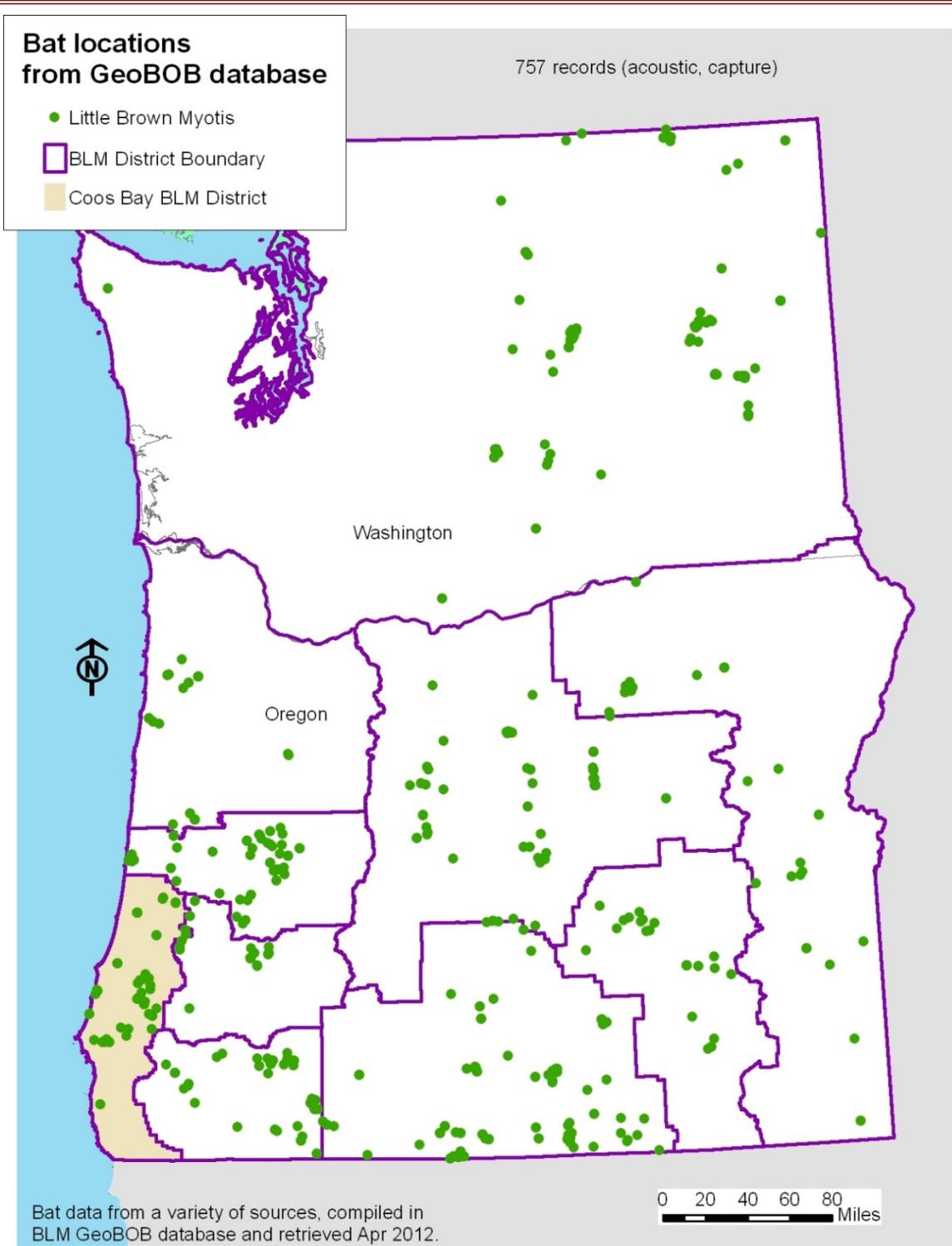
Common name	Latin	Approximate Range (National Atlas 2003)	Roosting Habit (Christy and West 1993 unless otherwise noted)	Life History (WBWG 2005 unless otherwise noted)	Status	Current Threats (WBWG 2005 unless otherwise noted)	Occurrence at Spruce Reach Island	Occurrence elsewhere within District boundary
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>		<p>Buildings: maternity, hibernacula, solitary. Bridges: maternity Caves & mines: maternity, hibernacula, solitary, colonial (males and & nonbreeding females) Hollow trees: (WBWG 2005) Rock crevices: (WBWG 2005)</p> <p>The WBWG (2011a) lists this bat as a cave-roosting bat. However, roosts can be found in buildings in the coastal and northern parts of its range (WBWG 2005).</p>	<p>Summer maternity colonies range in size from a few individuals to several hundred individuals. Maternity colonies form between March and June, with a single pup born between May and July. Mating generally takes place between October and February.</p> <p>“The daily and seasonal degree of movement of these bats and colonies of these bats is not settled and the dogma that these bats are sedentary, have high roost fidelity, and small home ranges may not be accurate.”</p> <p>These bats often travel large distances while foraging, including movements of over 150 kilometers / 93 miles.</p>	<p>Region 1 (from the coast to the Cascades between southern Oregon north into British Columbia): This species should be considered the highest priority for funding, planning, and conservation actions based on available distribution, status, ecology, and known threat information. This species is imperiled or at high risk of imperilment (WBWG 2011a).</p> <p>Status as of 2008: Least Concern because of its wide distribution, presumed large population, occurrence in a number of protected areas and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category (IUCN 2012).</p> <p>Global Rank: Not rare and apparently secure. National Rank: Not rare and apparently secure. Oregon Biodiversity Information Center (ORBIC) State Rank: Taxa that are threatened with extirpation or presumed to be extirpated from the state of Oregon; these are often peripheral or disjunct species which are of concern when considering species diversity within Oregon's borders. Oregon Department of Agriculture and Oregon Department of Fish and Wildlife State Status: State Critical: animal species imperiled with extirpation from a specific geographic area of the state because of small population sizes, habitat loss or degradation, and/or immediate threats. Special Status Species Category: Sensitive in Oregon and Washington. Documented occurrence on Burns, Coos Bay, Eugene, Klamath Falls, Lakeview, Medford, Prineville, Roseburg, Salem, Vale-OR, Vale-WA, and Spokane BLM Districts (USDI BLM 2011).</p> <p>Species of Concern: taxa whose conservation status is of concern to the U.S. Fish and Wildlife Service, but for which further information is still needed. Such species receive no legal protection and use of the term does not necessarily imply that a species will eventually be proposed for listing (USDI FWS 2012a).</p>	<p>Disturbance and/or destruction of roost sites, especially mines. Roosting and foraging habitat may be impacted by timber harvest practices and loss of riparian habitat.</p>	<p>2012 Aug 22: one bat observed flying in the shop inside the Spruce Reach house. 2011 Oct 20: one bat photographed hanging pendant from the shop ceiling inside the Spruce Reach house. 2010 Aug 22: AD (1).</p>	<p>2011 Aug 18: Baker Cave PAD and visual identification. Aug 22: Vincent Creek Guard Station visual identification. 2010 Jul 22: Road 073 Wetland PAD (3). Aug 25: Baker Cave PAD. Aug 24: Vincent Creek Guard House PAD and visual detection. Unk date: S Bridge Remote Site PAD (1). 2009 Sep 17: Vincent Creek Guard House AD and visual detection. Sep 24: Baker Cave AD. 2004 Jun 8: Woodward Creek: 4 bats captured.</p> <p>Townsend's big-eared bats are “quite effective at avoiding mist-nets” (WBWG 2005).</p>

Common name	Latin	Approximate Range (National Atlas 2003)	Roosting Habit (Christy and West 1993 unless otherwise noted)	Life History (WBWG 2005 unless otherwise noted)	Status	Current Threats (WBWG 2005 unless otherwise noted)	Occurrence at Spruce Reach Island	Occurrence elsewhere within District boundary
California myotis	<i>Myotis californicus</i>		<p>Buildings: maternity, hibernacula, solitary Bridges: maternity, solitary Caves & mines: maternity, hibernacula, solitary Bark: solitary Rock crevices: solitary Snags: solitary Hardwood foliage: solitary</p> <p>The WBWG (2011a) lists this bat as a multiple habitat species (as opposed to a tree-roosting, cliff-roosting or cave-roosting bat).</p>	<p>In spring or early summer, females form maternity colonies where they give birth to one pup per year.</p> <p>Throughout its range this bat roosts beneath loose bark and in crevices of old snags and live trees. It also forms small maternity colonies in cliff crevices, buildings and bridges. Like many species, California myotis switch roosts on a regular basis, sometimes within a few feet, sometimes up to a mile apart. Roost switching may aid in finding ideal roost temperatures and aid in avoiding predators and parasites (BCI 2011e).</p>	<p>Region 1 (from the coast to the Cascades between southern Oregon north into British Columbia): Most of the existing data support stable populations of this species, and the potential for major changes in status in the near future is considered unlikely. While there may be localized concerns, the overall status of the species is believed to be secure (WBWG 2011a).</p> <p>Status as of 2008: Least Concern because of its wide distribution, presumed large population, occurrence in a number of protected areas, tolerance to some degree of habitat modification, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category (IUCN 2012).</p>	<p>May be affected by closure of abandoned mines, and the removal of large diameter snags.</p>	<p>2011 Aug 25: AD (6). 2010 Aug 22: AD (3). 2009 May 8: AD (3). Sep 21: AD (5). 2004 Aug 31: 3 bats captured. 2001 May 18: one bat captured. Aug 23: 2 bats captured.</p>	<p>2011 Jul 20: BM Bunkhouse AD (2). Jul 20: BM Overlook AD (21). Aug 18: Baker Cave PAD. Aug 22: Vincent Creek Guard Station AD (2). Aug 30: BM Overlook AD (27). 2010 Jul 8: Bea Creek AD. Jul 20: Garbage Dump Pond Remote PAD (3). Jul 22: Road 073 Wetland AD (4). Jul 27: West Fork Otter Creek PAD (3). Jul 29: Middle Creek Recreation Site: 3 bats captured. Aug 24: Vincent Creek Guard House PAD. Aug 25: Baker Cave PAD. Unk. date: S Bridge Remote Site PAD (6). 2009 Jun 17: Middle Creek: 3 bats captured. Jul 10: Alder Creek Roadway AD (1). Jul 16: Garbage Dump Pond AD (12). Jul 16: Garbage Dump Pond Remote AD (2). Jul 22: Middle Creek Recreation Site AD (1). Aug 17: Middle Creek Recreation Site: 5 bats captured. Sep 24: Baker Cave AD. 2004 Jun 21: COO23A: one bat captured. Jul 8: COO22B Skeeter Camp: 3 bats captured. Jul 22: COO21B: 6 bats captured. Jul 27: COO22A: one bat captured. Aug 3: COO22B Skeeter Camp: 2 bats captured. Aug 16: COO24B: 2 bats captured.</p>

Common name	Latin	Approximate Range (National Atlas 2003)	Roosting Habit (Christy and West 1993 unless otherwise noted)	Life History (WBWG 2005 unless otherwise noted)	Status	Current Threats (WBWG 2005 unless otherwise noted)	Occurrence at Spruce Reach Island	Occurrence elsewhere within District boundary
Long-eared myotis	<i>Myotis evotis</i>		<p>Buildings: maternity, hibernacula, solitary Bridges: (Kunz and Reynolds 2003) Caves & mines: maternity, hibernacula, solitary Bark: solitary Rock crevices: solitary Snags: solitary</p> <p>The WBWG (2011a) lists this bat as a multiple habitat species (as opposed to a tree-roosting, cliff-roosting or cave-roosting bat).</p> <p>Individuals roost under exfoliating bark on snags and live trees, in tree cavities, stumps, fallen logs, caves, mines, cliff crevices, sinkholes, and rocky outcrops on the ground. They also sometimes roost in buildings and under bridges (WBWG 2005, BCI 2011e).</p>	<p>Females form small maternity colonies during the summer, and males and non-reproductive females roost alone or in small groups nearby. Females give birth to one young in late spring to early summer.</p> <p><i>M. evotis</i> is either solitary or roosts in colonies of up to 30 individuals.</p>	<p>Region 1 (from the coast to the Cascades between southern Oregon north into British Columbia): Yellow designation indicating a level of concern that should warrant closer evaluation, more research, and conservation actions of both the species and possible threats (WBWG 2011a).</p> <p>Status as of 2008: Least Concern because of its wide distribution, presumed common population, occurrence in a number of protected areas, tolerance to some degree of habitat modification, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category (IUCN 2012).</p> <p>Species of Concern: taxa whose conservation status is of concern to the U.S. Fish and Wildlife Service, but for which further information is still needed. Such species receive no legal protection and use of the term does not necessarily imply that a species will eventually be proposed for listing (USDI FWS 2012a).</p>	<p>May be affected by closure of abandoned mines, forest management activities, blasting of cliffs.</p>	<p>2011 Aug 25: AD (1). 2010 Aug 22: AD (4). 2004 Aug 31: One bat captured.</p>	<p>2010 Jul 6: Alder Creek Roadway Remote AD (2). Jul 22: Otter Creek: one bat captured. Jul 27: West Fork Otter Creek PAD (4). Aug 24: Vincent Creek Guard Station PAD. Aug 25: Baker Cave PAD. 2009 Jul 9: Otter Creek AD (17). Jul 16: Garbage Dump Pond AD (1). Jul 16: Garbage Dump Pond Remote AD (1). Sep 24: Baker Cave AD. 2004 Jun 22: COO24A: one bat captured. Jul 8: COO22B Skeeter Camp: 3 bats captured. Jul 19: COO23A: one bat captured. Aug 3: COO23B: one bat captured. Aug 18: COO21B: one bat captured.</p>

Appendix C Bat Species Observations in Oregon and Washington

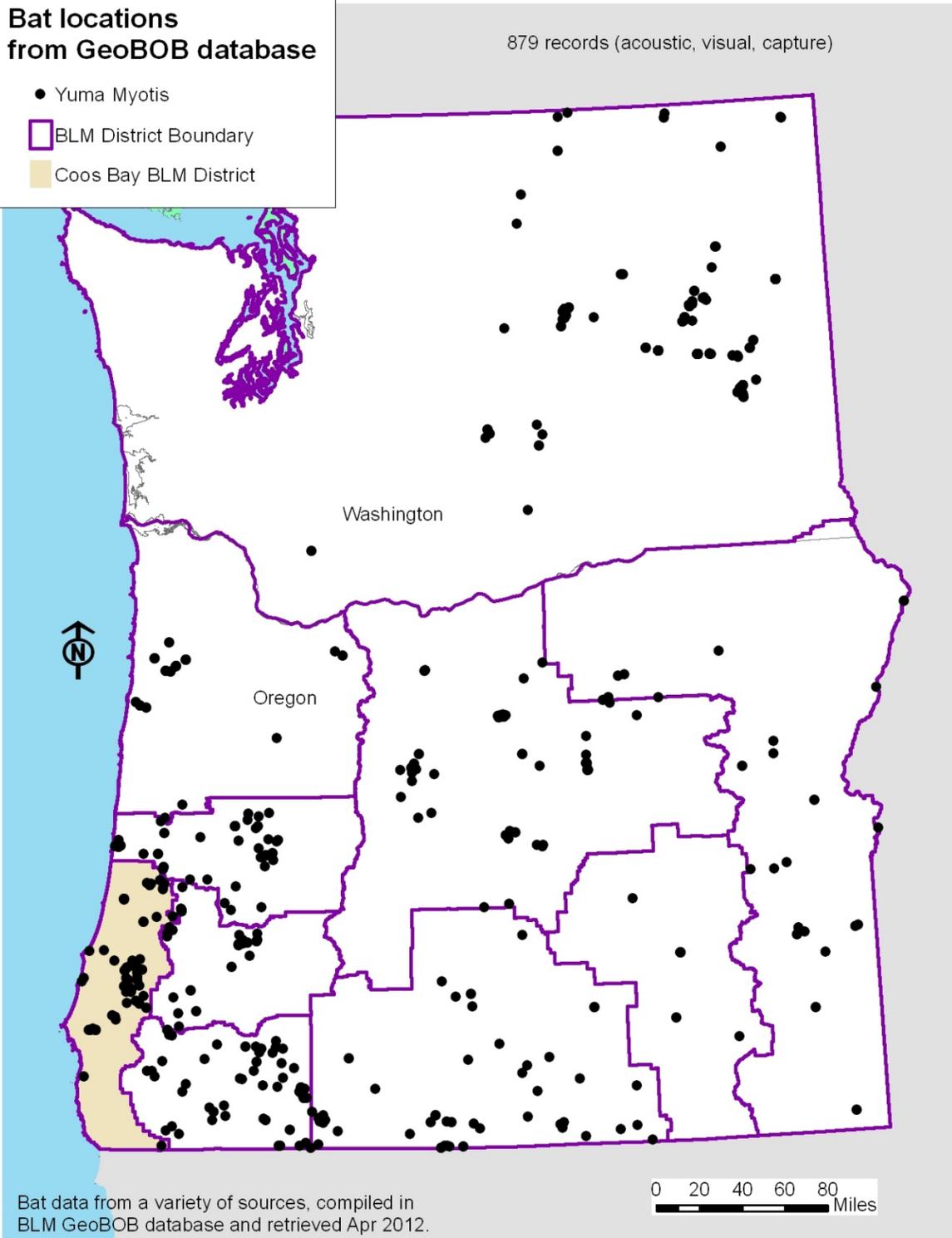
The following seven maps do not show locations of multiple species roosts or known maternity and winter roosts. These maps show capture, acoustic and visual detections per species.



Bat locations from GeoBOB database

- Yuma Myotis
- BLM District Boundary
- Coos Bay BLM District

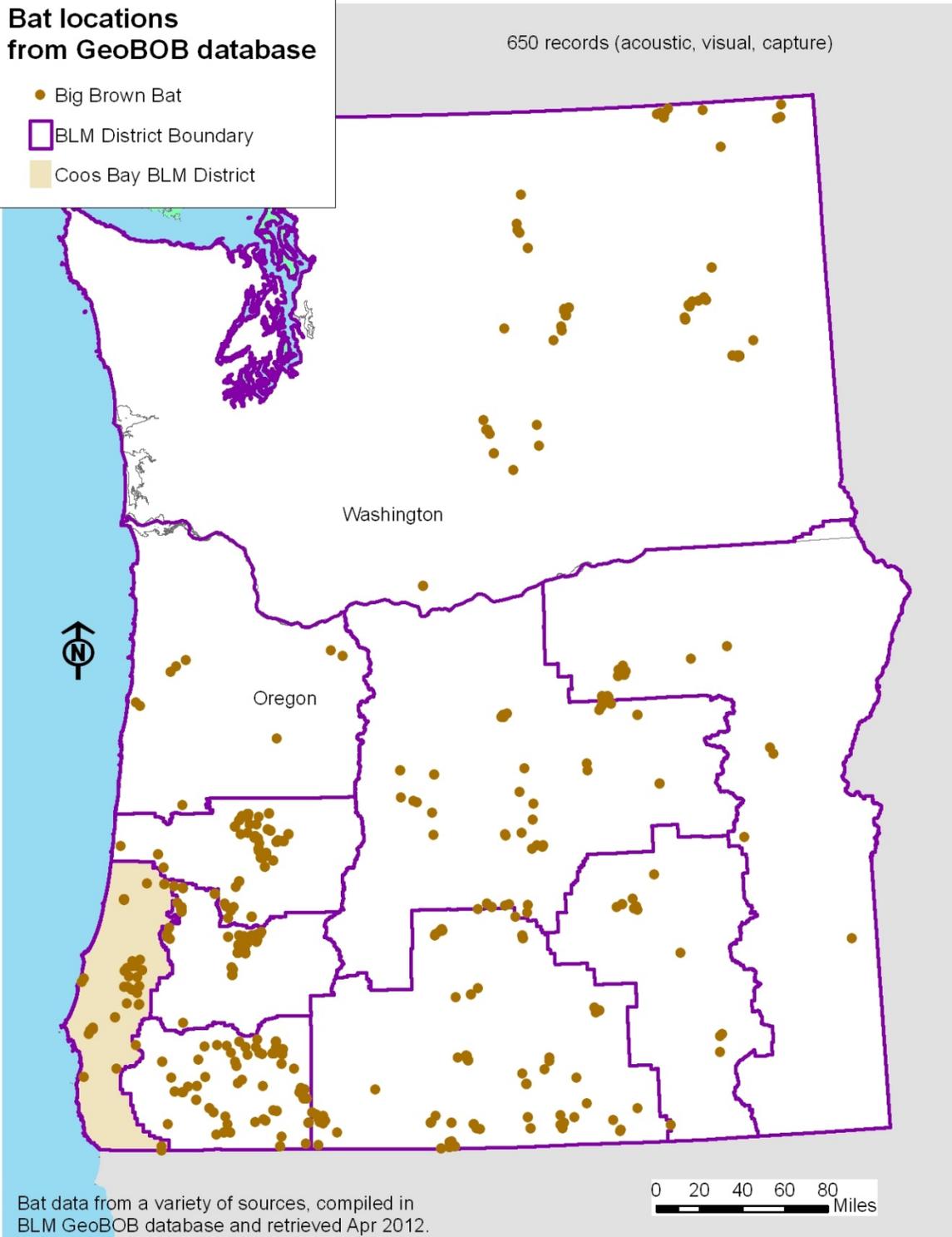
879 records (acoustic, visual, capture)



Bat locations from GeoBOB database

- Big Brown Bat
- BLM District Boundary
- Coos Bay BLM District

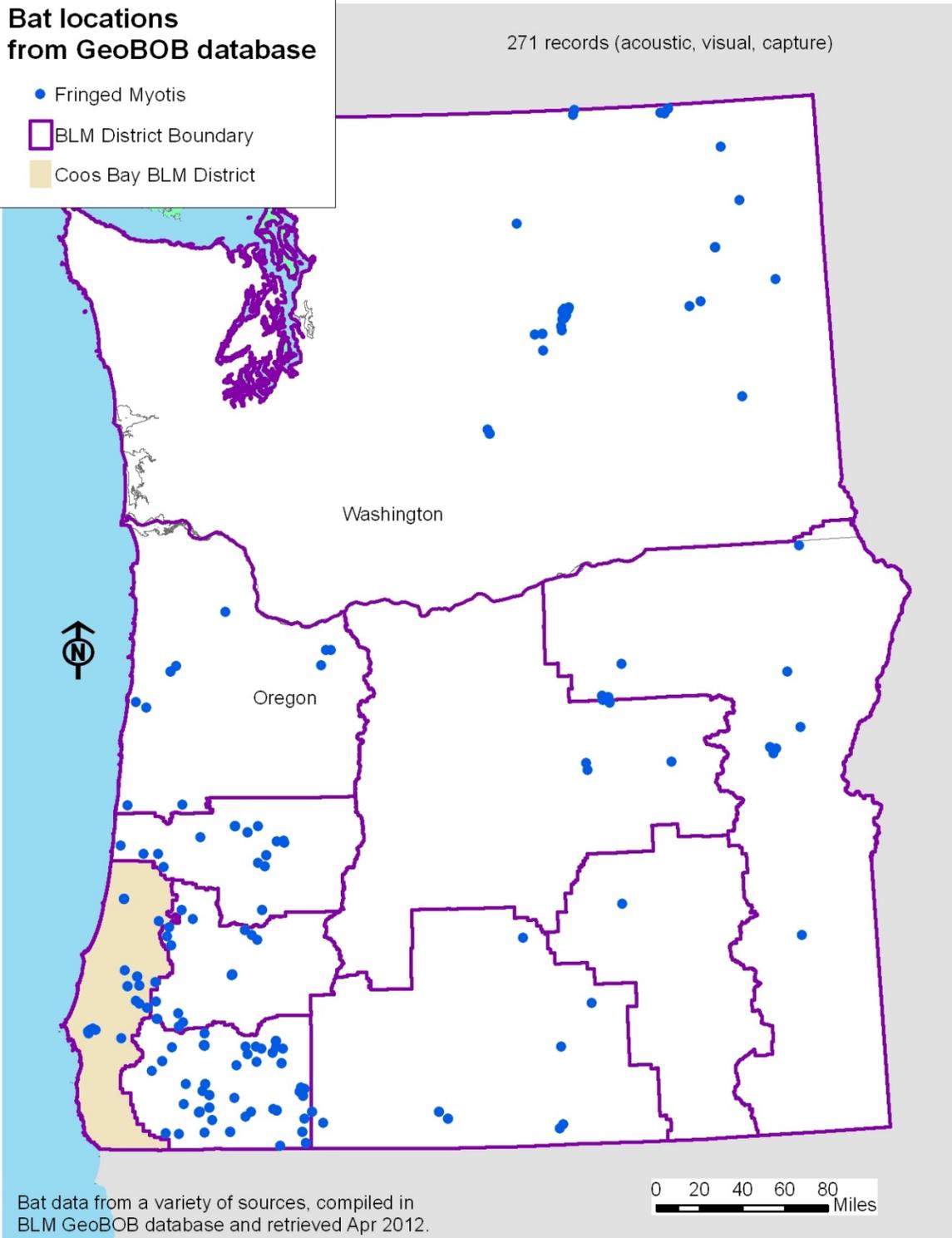
650 records (acoustic, visual, capture)



Bat locations from GeoBOB database

- Fringed Myotis
- BLM District Boundary
- Coos Bay BLM District

271 records (acoustic, visual, capture)

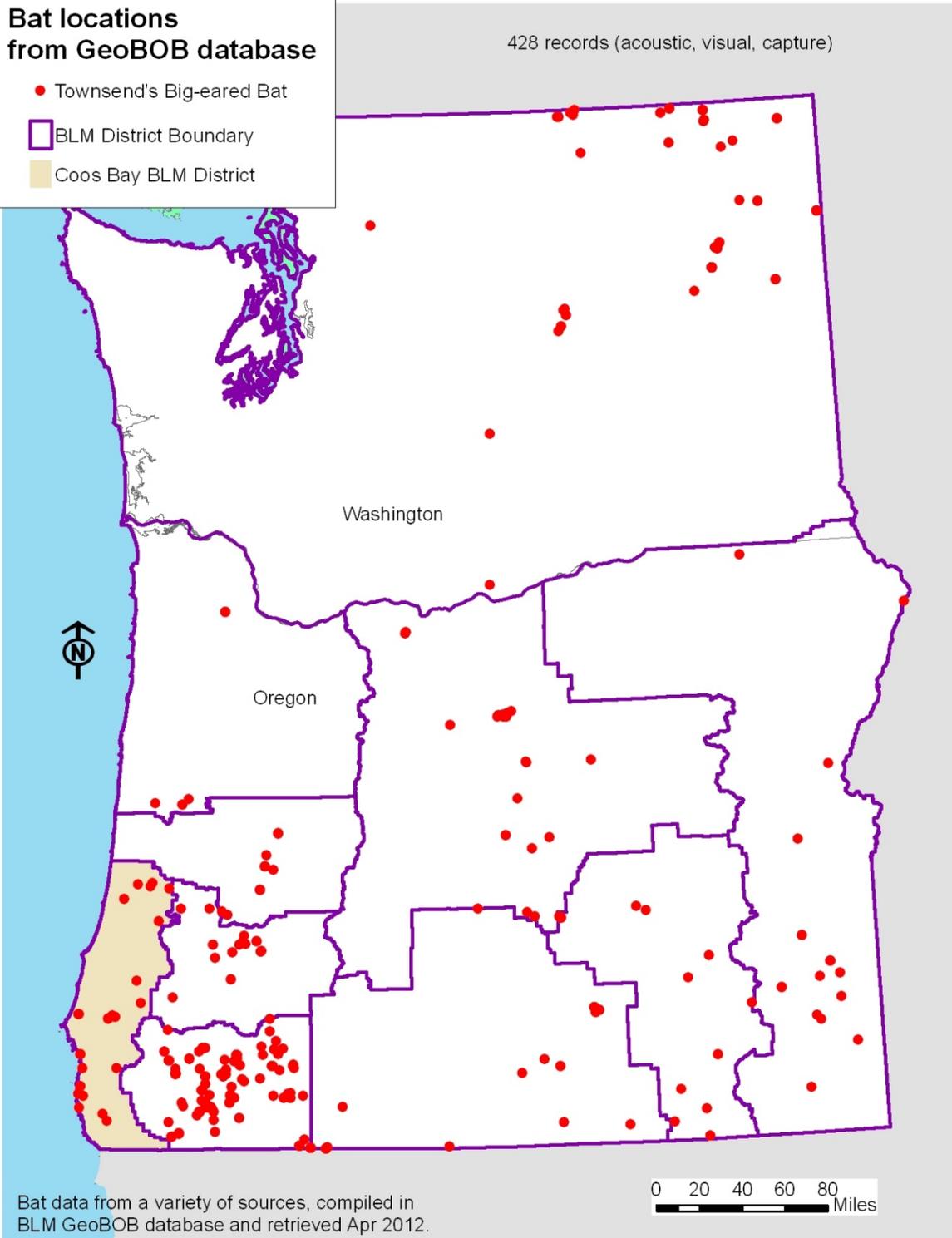


Bat data from a variety of sources, compiled in BLM GeoBOB database and retrieved Apr 2012.

Bat locations from GeoBOB database

- Townsend's Big-eared Bat
- BLM District Boundary
- Coos Bay BLM District

428 records (acoustic, visual, capture)

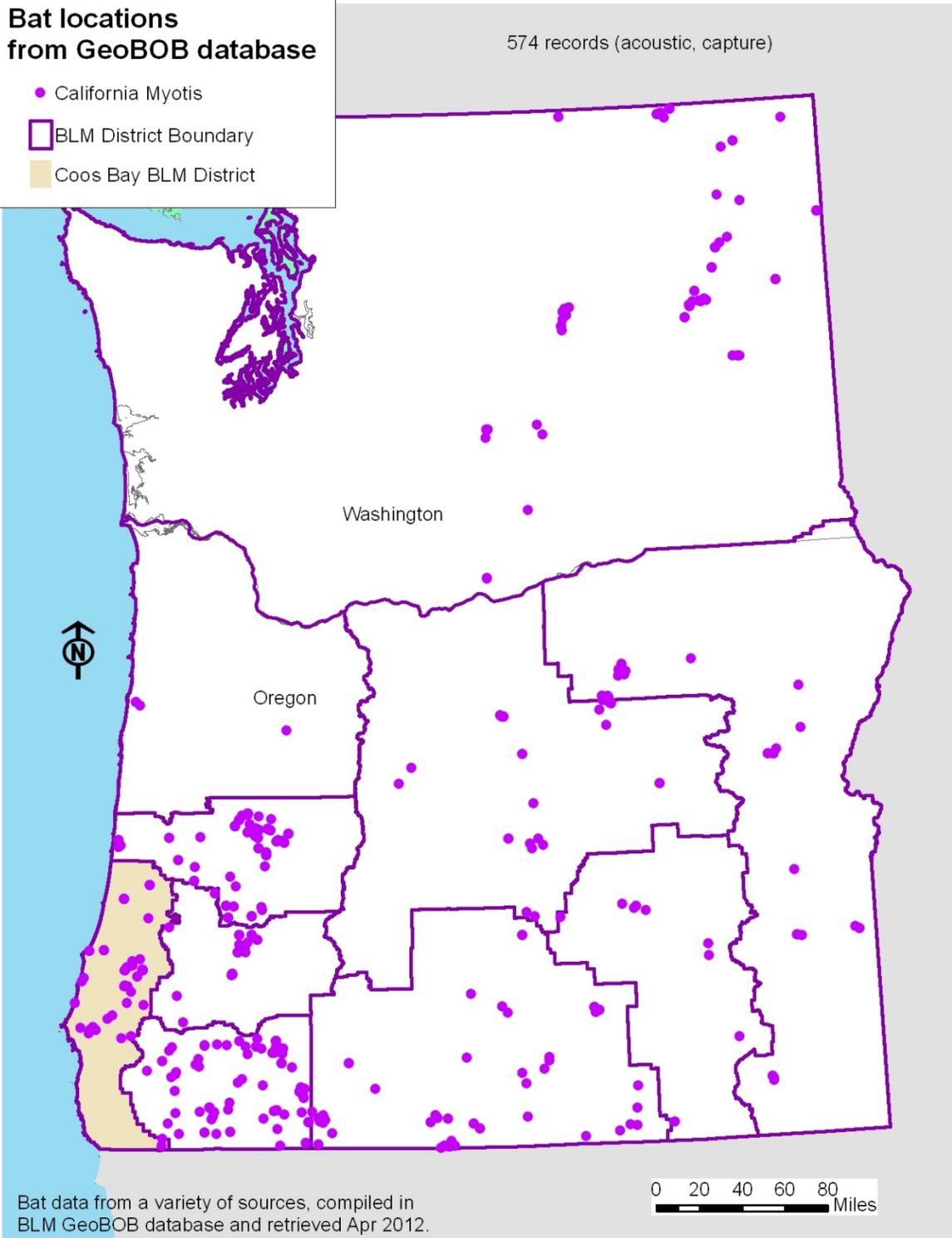


Bat data from a variety of sources, compiled in BLM GeoBOB database and retrieved Apr 2012.

Bat locations from GeoBOB database

- California Myotis
- BLM District Boundary
- Coos Bay BLM District

574 records (acoustic, capture)

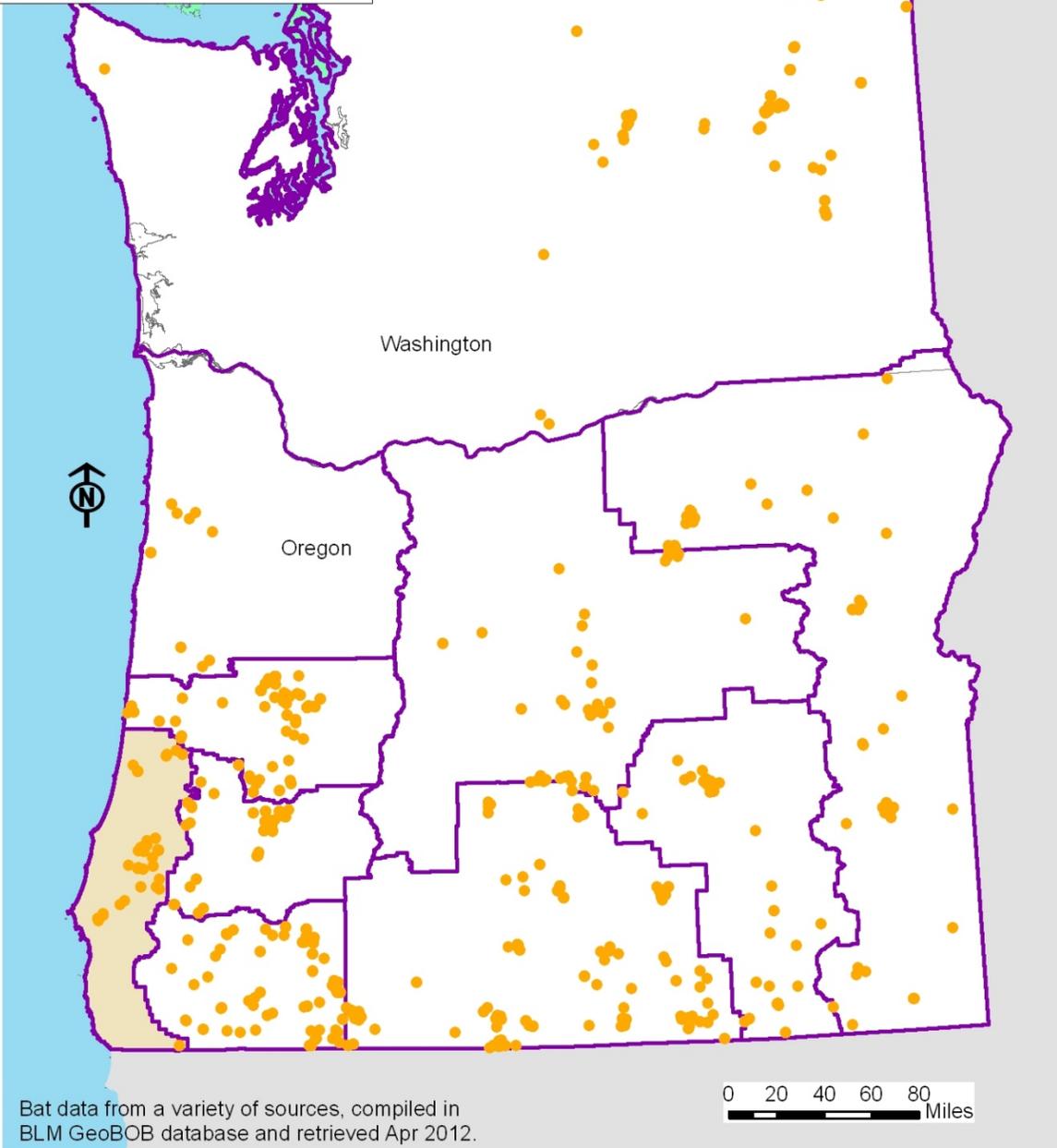


Bat data from a variety of sources, compiled in BLM GeoBOB database and retrieved Apr 2012.

Bat locations from GeoBOB database

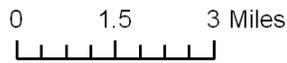
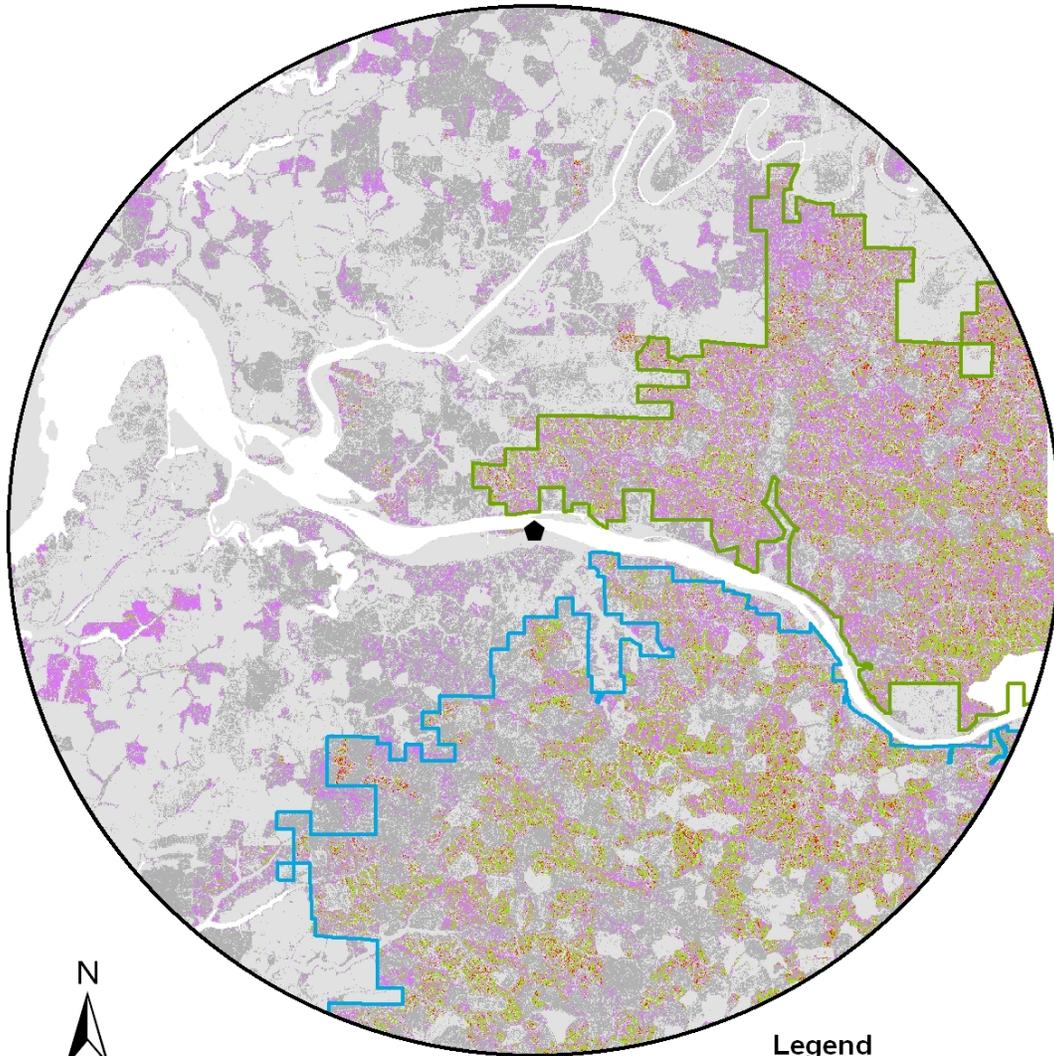
1,015 records (acoustic, visual, capture)

- Long-eared Myotis
- BLM District Boundary
- Coos Bay BLM District



Bat data from a variety of sources, compiled in BLM GeoBOB database and retrieved Apr 2012.

Appendix D Features in the vicinity of the Spruce Reach house



Tree Height (ft)	% of Area
0 - 50	48%
50 - 100	30%
100 - 150	13%
150 - 200	8%
200+	1%

Landowner	% of Area
BLM	2%
USFS	18%
State	25%
Private	55%

Legend

- Spruce Reach House
- 8 mi Radius
- Elliott St. Forest
- Potential Wilderness Area

Tree Height

- 0 - 50 ft
- 50 - 100 ft
- 100 - 150 ft
- 150 - 200 ft
- > 200 ft