

Environmental Assessment for Patos Island Composting Toilets

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Contents

1. Introduction.....	1
1.1. Project Area Description	1
1.2. Background.....	1
1.3. Purpose and Need	1
1.4. Land Use Plan Conformance Review.....	2
1.5. Applicable Laws, Regulations, and Policies	2
1.6. Summary of Public Involvement and Scoping Activities	2
1.7. Issues Identified.....	3
1.8. Issues Eliminated from Further Analysis	3
2. Alternatives	4
2.1. The No Action Alternative	4
2.2. The Proposed Action Alternative	4
2.3. Alternatives Considered but Not Analyzed in Detail	6
3. Affected Environment and Environmental Effects.....	6
3.1. Recreation.....	6
3.2. Visual Resources	7
3.3. Vegetation Resources	8
3.4. Cultural Resources and Native American Values	10
3.5. Wildlife Resources	11
4. Consultation and Coordination	17
5. List of Preparers.....	18
References Cited	19
Appendix A: Patos Island Project Map.....	22
Appendix B: Patos Island Composting Toilet Project Drawings and Photos.....	23
Appendix C: Special Status Plants	25
Appendix D: Sensitive Wildlife Species and Effects Determination.....	32
Appendix E: Washington State Guidelines for Composting Toilets Monitoring Form	43

1. Introduction

This environmental assessment (EA) analyzes a Bureau of Land Management (BLM) proposal to replace two existing pit toilets with two composting units (one double and one single unit), convert an existing vault toilet into a maintenance storage building, and construct an 82.02-foot toilet access path.

1.1. Project Area Description

The proposed project area is located on Patos Island within San Juan County of Washington State, T. 38 N., R. 2 W., sec. 16 (see map, appendix A). Patos Island is administered by the BLM's Wenatchee Field Office in the Spokane District and cooperatively managed with the Washington State Parks and Recreation Commission (WSP) through a memorandum of understanding (MOU).

In discussing the project area, the following terms and definitions will be used throughout this EA:

- **Action Area:** the exact footprint of activities proposed under the action alternative.
- **Analysis Area:** the broad area surrounding the action area, which in this EA shall refer to Patos Island and Little Patos Island.

1.2. Background

The focus of the current MOU governing this cooperative management (2010) is: "Improving the effectiveness and efficiency in attaining a shared mission and goals at Patos Island." In the spirit of cooperation and collaboration, the BLM and the WSP are working together to protect the natural resources and preserve the historic integrity of Patos Island while meeting the desires and expectations of visitors to this area.

The primary recreational interest on the island is the Patos Lighthouse. Additionally, the WSP has managed an established camping area with seven primitive campsites in the immediate area of Active Cove for the past 30 years. Restroom facilities on the island currently consist of two pit toilets and one vault toilet.

1.3. Purpose and Need

Need: The existing pit toilets are no longer functioning effectively; they are beyond their maintenance threshold, have surpassed their intended lifespan and are in unsatisfactory condition due to rotted wood, leaking roofs, and slippery surfaces during wet periods. Due to the secluded nature of Patos Island and the location of the vault toilet on the island, the logistical requirements for maintenance are inefficient.

Purpose: To provide toilets on Patos Island for public use that: 1) are in good serviceable condition, 2) will accommodate the high visitor use this area receives, 3) will reduce the maintenance needs associated with the existing toilets, and 4) will not cause major adverse impacts to natural resources.

1.4. Land Use Plan Conformance Review

There is no land use plan covering BLM lands in western Washington. In accordance with land use planning regulations (Code of Federal Regulations, 43 CFR 1610.8 (b) (1)), when an action is proposed for public lands not covered by an existing land use plan, an EA or an environmental impact statement will be prepared to assess the impacts of the proposal and, along with any other data and analysis necessary, will provide a basis for a decision on the proposal.

1.5. Applicable Laws, Regulations, and Policies

The proposed action and this analysis are consistent with and consider the following laws, regulations, and policies:

- The National Environmental Policy Act of 1969, as amended (in the United States Code, 42 U.S.C. 4321 et seq.)
- The Federal Land Policy and Management Act of 1976 (43 U.S.C. 1712)
- The Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.)
- BLM Manual 6840, "Special Status Species Management"
- Migratory Bird Treaty Act of 1918, 16 U.S.C. 703-712, 50 CFR 1
- Bald and Golden Eagle Protection Act of 1972, 16 U.S.C. 668

Laws, regulations, and policies protecting cultural resources on public lands:

State

- Revised Code of Washington (RCW) 27.44, Indian Graves and Records, and 27.53, Archaeological Sites and Resources

Federal

- 36 CFR 800, Protection of Historic Properties
- National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 et seq.)
- Archaeological Resources Protection Act of 1979 (16 U.S.C. 470)
- Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001-3013))
- American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996)
- Executive Order 13007 of May 24, 1996, "Indian Sacred Sites"
- National Programmatic Agreement, as revised February 2012

Federal laws protecting paleontological resources:

- Paleontological Preservation Act of 2009 (Public Law 111-11)

1.6. Summary of Public Involvement and Scoping Activities

In February 2011, the BLM notified approximately 20 entities representing federal, local, and state agencies; nonprofit organizations; and individual stakeholders of the proposed project via the U.S. mail. The BLM also initiated government-to-government consultations with Native American tribes concurrent with public scoping for this project; additional information is provided in section 4 of this document. Each entity on the mailing list received a scoping information packet notifying them of the proposed project and soliciting their comments. The scoping information packet was also posted to the BLM Spokane District website. The scoping information packet provided preliminary information on the proposed action, purpose, and need

for the action as well as issues identified to date. The public was given approximately 1 month to respond with comments. Public comments were highly supportive of the proposed project although one party identified a concern for proper treatment of composted materials. Additionally, during the scoping period, the BLM held meetings with Keepers of the Patos Light and Washington State Parks to further discuss aspects of the project.

1.7. Issues Identified

The BLM identified the following issues through public scoping, field review, and consideration of published and collected information regarding the Action Area and its surrounding landscape:

Public Health and Safety

- How would composted materials be distributed once they have met their composted requirements?

Recreation

- How would the proposed project change patterns of use in the area?

Visual Resources

- Would the appearance of the two new composting toilets contrast with the natural surroundings?
- Would the locations of the two new composting toilets detract from the overall visual experience for visitors to the area?

Vegetation Resources

- How would construction activities affect the distribution and abundance of noxious and invasive plants in the analysis area?

Cultural Resources and Native American Values

- Would construction activities, including removal of the pit toilets, replacement with composting units, revegetation efforts, and access pathway construction, affect National Register of Historical Places, eligible cultural properties, or paleontological sites?

Wildlife

- Would construction or associated noise disturbance affect habitat, abundance, or distribution of species on the federal threatened or endangered species list?
- Would construction or associated noise disturbance affect bald eagle or golden eagle nesting?
- Would construction or associated noise disturbance affect bats or migratory birds?

1.8. Issues Eliminated from Further Analysis

The following list of issues and concerns were identified through the same means as those described in section 1.7, but they have been eliminated from further analysis for reasons detailed below:

Vegetation Resources

There are no known special status plants in the project area. *Castilleja levisecta* (golden Indian paintbrush) is the only plant on the federal list that is suspected in the San Juan Islands; however, the forested habitat in the project area is not suited for this species. Special status plants are therefore not being analyzed for this decision (see appendix C).

Special Designated Areas

There are no special designations, such as Areas of Critical Environmental Concern or National Conservation Areas, for this area.

Soils and Hazardous Materials

The scope of the project does not affect soils. There are no hazardous materials as part of this action.

Ecosystem Sustainability and Biodiversity

Ecosystem sustainability and biodiversity function at spatial scales much larger than the action area. No species would be eliminated from the analysis area by any alternative.

2. Alternatives

2.1. The No Action Alternative

Under the no action alternative, the BLM and WSP would not replace the existing toilets or do any construction. As a result, the existing toilets would continue to be used by the public and maintained by the WSP.

2.2. The Proposed Action Alternative

Removal and Revegetation

Both of the existing pit toilets would be manually disassembled onsite by Washington State Parks and BLM staff and volunteers using common hand tools. All aboveground materials would be hauled away by watercraft and properly disposed of in San Juan County transfer stations.

The remaining holes would be filled with locally sourced, weed-free soils from Washington State Park stockpiles or private vendor sources. Fill soils would be transported by a WSP barge and hauled to the pit toilet sites using a small tractor on existing trails. The pit toilet area which is approximately 80 square feet would be restored with native plants, downed brush, or debris.

Decommissioning Vault Toilet

The existing vault toilet would be decommissioned, which would entail a final pumping and cleaning of the vault unit. Pumped and collected wastes would be transported similarly to routine maintenance activities via the WSP barge and transferred to the Moran State Park lift station on Orcas Island. Collected waste would then be transferred to the Rosario Resort sewage treatment plant.

The toilet riser (seating area) of the existing vault toilet would be removed and the hole would be secured and covered. The vault toilet building would be converted into an equipment storage unit.

Construction

Site preparation, construction, and cleanup would be completed outside of the high-use season, which occurs between June 15 and September 15 given favorable weather considerations and available volunteers. This project would include one to two WSP barge trips to deliver materials and supplies. All materials would be transported to the Active Cove Beach and then to the project site by hand, wheelbarrow, or small tractor using existing trails (see appendix A). Construction would be performed by Washington State Parks staff, BLM staff, and volunteers and would require approximately 2-3 days of labor using an estimated six to eight volunteers. Construction activities would include using common hand tools to hammer nails into boards and handsaws to cut lumber. Portions of the toilet structures would be preassembled prior to delivery to be easily carried by volunteers. The new composting toilet units are expected to be in favorable maintenance condition for approximately 15 years (Sabine 2010).

The sites for the two new composting toilets would be lightly grubbed using hand tools to remove vegetation and create a level surface. The toilet locations were chosen because of their proximity to campsites and day-use areas as well as topographic considerations. Minimal subsurface disturbance would be required. To accommodate the human fluid drainage tube, a small ditch 12 inches deep by 8 inches wide by 4 feet long would be dug using common hand tools. The drainage tube would be placed into the ground and the small ditch would then be covered and restored with native plants and debris.

Access Pathway Construction

The proposed pathway (82.02 feet by 3.28 feet) to unit 1 (the double unit), which connects to the main existing trail, would be constructed using a non-disturbing building technique, which entails covering the ground surface with geotextile fabric and overlaying it with wire mesh. Several inches of sand and gravel would be placed on top of the fabric and mesh to create a new trail surface. The edge of the pathway would be defined and armored with round posts placed horizontally on the ground surface. Access pathways have been successfully used by the BLM and by Washington State Parks to protect resources underlying pedestrian trails in the San Juan Islands.

Routine Maintenance and Monitoring

Ongoing maintenance of the two new composting toilets would be performed by Washington State Parks staff, BLM staff, and volunteers and would entail cleaning, painting, adding compost, and other regular maintenance activities. Composted materials handling, operations, and monitoring would be performed by WSP staff and would be in accordance with Washington State Guidelines for Composting Toilets (Washington State Department of Health 1989). Composted materials will be staged into long-term composting bins for up to 2-3 years to allow for proper composting. Composted materials will not be used directly on root crops or on low-growing edible vegetables, fruits, or berries that are for human consumption. Properly composted materials will be distributed in the natural environment in accordance with the Washington State Department of Health (1989). All nonorganic materials, such as plastics, garbage, and other items, would be handled by WSP staff and disposed of properly.

Performance of composting toilets will be monitored in accordance with the Washington State Department of Health (1989) (see appendix E).

2.3. Alternatives Considered but Not Analyzed in Detail

Portable Toilets

Supplemental portable toilets were considered for short-term use during periods of high visitation. This alternative was eliminated from further analysis because it would not accomplish the purpose due to high maintenance demands such as increased staff visitation for pumping and cleaning. The capacity of portable toilets would be too small to accommodate the human waste loading projected during the high visitor use season, and Washington State Parks staff would not be able to service and pump the units as needed. During the high visitor use season, the units would have to be serviced and pumped twice a week. The Washington State Parks barge and pumping unit is not available at those intervals (Sabine 2010). The Washington State Parks barge and pumping unit must be scheduled and transported from outside of the San Juan Marine Park area and typically is brought into the San Juan Islands twice a year from Deception Pass State Park. The San Juan Marine Park staff also uses the barge at this time to accommodate other areas outside of Patos Island. Another consideration, due to the remote location of Patos Island, was inclement weather, which can limit the intervals for performing the routine maintenance required to maintain health and safety standards for portable toilets.

Pack It In, Pack It Out

Designation as a “pack it in, pack it out” site was also considered but eliminated from further analysis. This alternative would not accomplish the purpose due to projected negative resource impacts associated with anticipated noncompliance and human waste accumulation near areas of concentrated visitor use. Due to the size of the designated camping area and the volume and concentration of visitors to the camping area “pack it in, pack it out” would not be a viable alternative because it would increase resource impact and would not meet the need for effective toileting facilities.

3. Affected Environment and Environmental Effects

3.1. Recreation

Visitor use is limited because there is no main ferry service and only limited accommodations on Patos Island. For visitors who have made the trip to Patos Island, the Light Station site is one of the main attractions on the island. Facilities at the site include two pit toilets, one vault toilet, seven primitive designated campsites, two Washington State Parks mooring buoys, hiking trails, an assortment of historic structures. The current toilet locations do not accommodate lighthouse visitors due to their distance from the lighthouse.

Approximately 6,000 people visit Patos Island annually (USDI 2006). The majority of visitors are international and local boaters who use the existing Washington State Parks mooring buoys and camp in the designated primitive campsites. There are also many day-use visitors who arrive by boat from other parts of the northwestern United States and Canada. Visitor use occurs throughout the year but primarily from May to September and consists of picnicking, camping, hiking, wildlife viewing, and cultural heritage activities.

Active Cove and Active Cove Beach are the main portals to Patos Island and the predominant access points to the camping areas and lighthouse. Active Cove is a semi-protected cove with two Washington State Parks mooring buoys. Active Cove Beach is a sand and small gravel beach with a gentle grade, which makes for a desirable beach landing for smaller motorized and non-motorized watercraft.

Visitor use of Patos Island is greatest from May 15 to September 15. The shoulder seasons for visitor use are typically March 15 to May 14 and September 16 to October 15. The off season occurs predominantly between October 16 and March 14. In fair weather conditions, visitors can still enjoy the area during the shoulder and off seasons (Sabine 2010).

3.1.1. Direct and Indirect Effects from No Action Alternative

Under the no action alternative, the recreational experience could be negatively impacted due to continued deterioration of the pit toilet structures; overall odor emitted by the pit toilets; and unsatisfactory, unsafe, and unhealthy conditions of the facilities.

The no action alternative could have a negative effect on the visitor's experience by not providing a toilet location closer to the lighthouse, which is the prominent day-use attraction. Under the no action alternative, site conditions would continue to deteriorate, and if appropriate accommodations are not provided, visitors will likely begin using the natural surroundings rather than the pit toilets for their human waste. If the no action alternative is chosen, there will continue to be no area available for toileting supplies and maintenance tools. Under the no action alternative, the pumping of the vault toilet will continue to be inefficient and cumbersome due to the challenging logistics of performing required maintenance.

3.1.2. Direct and Indirect Effects from Proposed Action Alternative

Impacts from the proposed action are expected to be limited to the identified and designated proposed composting toilet locations; toilets 1 and 2 (see appendix B). To create the footprint for the units, including the compost storage bins, less than 200 square feet of vegetation would be cleared. The long-term result of this action would enhance the recreational visitor's experience by providing clean, safe, and healthy toilet facilities. The overall recreational use patterns of the proposed action would not change.

3.1.3. Cumulative Effects

No additional projects are planned for the analysis area at this time. Because the direct and indirect effects of the proposed project would not have a negative effect on the overall recreational experience, no effects to the recreation portion of the human environment are predicted as cumulative effects of this action.

3.2. Visual Resources

3.2.1. Affected Environment

The analysis area has not yet been determined to have a visual resource management (VRM) objective. A visual resource inventory (VRI) was recently completed in which scenic quality

rating units and key observation points were used to assign the analysis area to inventory class II. A class II VRM objective would be to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. New projects can be approved if they blend in with the existing surroundings and do not attract attention (i.e., small scale picnic area or primitive campground in valley shielded from view that blends with natural appearance).

Patos Island has been recently designated as a VRI interim class II. As part of the VRI, scenic quality rating units were established. As part of the overall scenic quality rating for Patos Island, the sensitivity of the area rated as high, given that the area is a destination site and highly valued by visitors for viewing and experiencing the maritime and cultural history of the existing lighthouse and also the unique primitive natural setting. The final scenic quality rating for Patos Island was determined to be “A” considering the following high scoring attributes: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications.

3.2.2. Direct and Indirect Effects from No Action Alternative

Over time, under the no action alternative, deteriorating pit toilets would cause a visual resources conflict by contrasting and taking away from the pristine and natural beauty of the area. This would lend itself to a public perception of poor management, little value, and low priority. Without proper toilet facilities the toilet paper and other waste products accumulated in the nearby forested areas would contrast with the natural surroundings. These unsightly features would directly affect the visitor’s recreation experience and the natural resources of the area.

3.2.3. Direct and Indirect Effects from Proposed Action Alternative

The proposed action would not change the existing color dynamics of the primitive secluded setting in the long term but may have short-term effects during implementation, prior to revegetation. The short-term effects prior to revegetation would be color changes to the immediate surroundings of the cleared area changing from green leafy vegetation colors to earthy brown soil colors. This short-term effect would last for less than 30 days. Color schemes for the facilities would blend with the natural surroundings and not detract from the natural character of the area.

3.2.4. Cumulative Effects

The cumulative effects of the proposed action on visual resources include consideration of the past, present, and reasonably foreseeable future actions in the analysis area. Past actions are incorporated in the visual resource baseline (described above) and present actions include only the proposed action. No additional projects are planned for the analysis area at this time. There are no foreseeable actions that would cumulatively affect visual quality at this location.

3.3. Vegetation Resources

3.3.1. Affected Environment

Patos Island is vegetated predominantly by two types of forests. On the island interior and eastern side of the island, a moist forest is dominated by Douglas-fir (*Pseudotsuga menziesii*), western redcedar (*Thuja plicata*), grand fir (*Abies grandis*), western hemlock (*Tsuga heterophylla*), bigleaf maple (*Acer macrophyllum*), and red alder (*Alnus rubra*) (Arnett, 2001). This wet forest has an understory comprised of western swordfern (*Polystichum munitum*), trailing blackberry (*Rubus ursinus*), and oceanspray (*Holodiscus discolor*).

A drier, shallow soil forest dominated by Douglas-fir with some lodgepole pine (*Pinus contorta* var. *contorta*), western redcedar, Pacific madrone (*Arbutus menziesii*), and quaking aspen (*Populus tremuloides*) occurs in the southwest portion of the island, and the project area lies within this forest type. The understory of this dry forest is a mix of oceanspray, salal (*Gaultheria shallon*), kinnikinnick (*Arctostaphylos uva-ursi*), and salmonberry (*Rubus spectabilis*).

3.3.2. Direct and Indirect Effects from No Action Alternative

Routine maintenance activities would have no direct or indirect effects on the vegetation.

3.3.3. Direct and Indirect Effects from Proposed Action Alternative

Prior to construction of the new toilets, removal of vegetation would occur in the footprint of the new buildings. No trees would be removed for this construction and the area of vegetation removal for each unit would be approximately 200 square feet; therefore, effects to the vegetation on Patos Island are expected to be minimal. The storage building will be created by decommissioning the vault toilet, therefore will have the same footprint and no vegetation disturbance is expected.

The project area where the pit toilets would be decommissioned and the areas where new composting toilets would be constructed are all adjacent to existing trails. The lush surrounding vegetation would be expected to naturally encroach and fill the areas where construction or disturbance has occurred. If needed, native seed may be used to augment this natural encroachment. Brush would also be used to cover bare areas until vegetation is established.

Few invasive species occur on the island; however, no class A, B, or C Washington State noxious weeds are known to occur near the toilet sites (Washington State University, 2012). Using native downed brush to cover disturbed areas after construction will minimize any establishment of noxious weeds or nonnative species.

Compost effects to vegetation would also be minimal. Based on observations from other composting toilets in the San Juans, the aged compost is distributed in a very thin pattern, and would not change soil nutrients enough to alter vegetation composition.

Overall, the direct and indirect effects of the proposed action alternative would be some areas of vegetation clearing as well as eventual reclamation of previously disturbed areas with native vegetation. Noxious weeds are not expected to be introduced, and vegetation composition would not be expected to be altered from the existing composition.

3.3.4. Cumulative Effects

The cumulative effects of the proposed action on vegetation resources include consideration of the past, present, and reasonably foreseeable future actions in the analysis area. Past actions are incorporated in the vegetation baseline (described above), and present actions include only the proposed action. No additional projects are planned for the analysis area at this time. Because the direct and indirect effects of the proposed project would not have an adverse effect on the vegetative resources, no effects to the vegetation portion of the human environment are predicted as cumulative effects of this action.

3.4. Cultural Resources and Native American Values

3.4.1. Affected Environment

The project area occupies the traditional homelands of the Central Coast Salish, which includes tribes associated with the Northern Strait Salish language. Regional histories note that these tribes shared similar subsistence patterns characterized by a reliance on fish, game, and edible plants and roots. The village location would have provided access for resource gathering. Fishing focused on salmon, but halibut and sturgeon were also taken. Hunters sought a variety of sea mammals, waterfowl, and various land mammals, while roots, berries, bulbs, and shellfish were gathered throughout the Central Coast Salish territory (Suttles 1990). Many traditional fishing stations and hunting and gathering areas are still utilized by Native Americans today.

Following the resolution of the international boundary dispute between Britain and the United States in 1872, the U.S. Secretary of the Interior asked the U.S. Lighthouse Board to identify suitable lighthouse locations in the San Juan Islands. In 1875, four “aid to navigation” sites were selected, including Patos Island. During the early 1890s, the fog signal building or “horn house” was constructed on Patos Island. In addition, a keeper’s quarters and various outbuildings were constructed to accommodate employees stationed at the facility. The original horn house was converted in 1908 to a lighthouse with the addition of a tower and light. Other structures were added and removed throughout the early and mid-20th century. The facility was fully automated in 1976 by the U.S. Coast Guard, which succeeded the U.S. Lighthouse Service in 1939. The only other remaining standing structure on Alden Point is the fog signal building, which was listed on the National Register of Historic Places (NRHP) in October 1977.

Archival records, previous inventories, and Department of Archaeology and Historic Preservation (DAHP) and BLM site databases were reviewed for this project. In addition, a cultural resources inventory was conducted in the area of potential effect in 2011 by the BLM (Sweeney, Survey Report #130110501). The survey concluded that part of the action area included a small portion of precontact site 45SJ97; this site has not yet been formally evaluated for listing on the NRHP, but it is considered potentially eligible under criterion D. No other sites are situated in the action area.

3.4.2. Direct and Indirect Effects from No Action Alternative

Under the no action alternative, the progressive deterioration of the pit toilets would eventually make these facilities unusable. Over time, this situation would result in adverse effects to cultural properties because visitors would resort to using the island’s natural and cultural surroundings instead of the available restroom facilities.

3.4.3. Direct and Indirect Effects from Proposed Action Alternative

The cultural resources survey indicated that a portion of one site was within the project's action area; however, the project has incorporated design features that are intended to protect the site and avoid disturbance. Implementation of the proposed action would not impact potentially eligible cultural properties within the action area. The Washington State DAHP has provided its concurrence with this determination of no effect and consulting tribes have no concerns.

3.4.4. Cumulative Effects

The cumulative effects of the proposed action on cultural resources include consideration of the past, present, and reasonably foreseeable future actions in the analysis area. Past actions are incorporated in the cultural baseline (described above), and present actions include only the proposed action. At this time, no additional projects are planned for the analysis area. Because the direct and indirect effects of the proposed project would not have an adverse effect on the cultural resources; no effects to the cultural portion of the human environment are predicted as cumulative effects of this action.

3.5. Wildlife

3.5.1. Affected Environment

The BLM defined the analysis area considered for potential effects to wildlife species as a 1-mile buffer from the center of the action area. This area includes Patos and Little Patos Islands as well as portions of the marine environment that fall within that extent. This extent was chosen based on the localized nature of the disturbance and the limited potential for noise disturbance associated with construction activities (see proposed action description above). This area encompasses approximately 2,010 acres. The BLM did not analyze travel to and from the island because this activity is already permitted under Washington statutes governing the use of marine waterways, and the limited number of trips associated with this project would not be discernible from the current baseline.

Patos and Little Patos Islands and the marine waters surrounding them are utilized by a diverse array of terrestrial and aquatic species. Given the limited and localized scope of this project, the potential effects analysis for wildlife focuses only on those species that warrant conservation concern as identified by state (Washington Department of Fish and Wildlife) and/or federal agency (U.S. Fish and Wildlife Service, BLM, National Marine Fisheries Service, National Oceanic and Atmospheric Administration) designations.

A complete list of all species considered for analysis, including their federal and/or state status, can be found in Appendix D: Sensitive Wildlife Species and Effects Determination. This appendix was broadly compiled for San Juan County from the Washington Department of Fish and Wildlife county lists for priority habitats and species (WDFW 2008), the U.S. Fish and Wildlife Service county list (USFWS 2010), and the Oregon/Washington BLM special status species list (USDI BLM 2011B). The BLM eliminated no species from consideration if it occurred on those lists. However, BLM found through further detailed analysis that not all of the species included are documented, suspected, or otherwise thought to potentially occur in the project area. The BLM eliminated all fish species from further analysis because no potential

direct or indirect impacts were identified for members of this taxon. For the purpose of this analysis, and based on the issues identified in scoping, wildlife species found in appendix D will be discussed as members of the following groups:

1. Federally listed species
2. Bald and golden eagles
3. Migratory birds
4. Bats

Federally Listed Species

All federally listed and proposed endangered and threatened species were considered in this analysis (see appendix D). Four listed species, which are discussed below, were identified for consideration based on current or historic occurrence data, known or predicted distributions, and the presence of suitable habitat. One candidate for federal listing, the yellow-billed cuckoo, was also identified, but potential effects were not analyzed due to the lack of suitable habitat in the project area. Because there is no designated critical habitat within the analysis area, the potential for loss or adverse modification of critical habitat was not analyzed.

Marbled Murrelet (*Brachyramphus marmoratus*)

The Washington, Oregon, and California population segment of the marbled murrelet was listed as threatened under the ESA on September 28, 1992 (USFWS 1997). Critical habitat for this population segment was designated on May 24, 1996, and then revised on October 5, 2011 (USFWS 2011). This small diving seabird occurs along the Pacific coast from the Aleutian Archipelago and southern Alaska to central California. It forages almost exclusively in the near shore marine environment, but flies inland to nest in mature conifers (USFWS 1997). Marbled murrelets can occasionally be found foraging in the waters surrounding Patos Island; however, there are no known nest sites on the island. Patos Island is also outside the boundaries of designated critical habitat for this species (USFWS 2011).

Short-Tailed Albatross (*Phoebastria albatrus*)

This species was listed as endangered under the ESA throughout its range on July 31, 2000 (USFWS 2001). Short-tailed albatrosses forage widely across the temperate and subarctic North Pacific, but breeding only occurs at the two remaining colonies in Japan (USFWS 2001).

Typically, within North American waters albatrosses are found in the Gulf of Alaska along the Aleutian Islands and in the Bering Sea. This species is an extremely rare transient in Washington and is unlikely to occur in the project area (USFWS 2001).

Orca (*Orcinus orca*)

The distinct population segment (DPS) of southern resident killer whales was listed as endangered under the ESA on November 18, 2005 (NMFS 2008). During the summer and fall, members of this DPS can often be observed in the marine waters surrounding Patos Island. Since members of this DPS primarily forage on salmonid species, their likelihood of occurrence is correlated with the timing and duration of the salmon runs. Occasionally, transient orcas that are not members of the listed DPS can also be observed in the area.

Steller Sea-Lion (*Eumetopias jubatus*) (eastern DPS)

The Steller sea lion was listed as a threatened species under the ESA on April 5, 1990, but due to demographic and genetic dissimilarities, two distinct population segments were delineated in

1997 (NMFS 2008). The eastern DPS, which includes sea lions found in Washington, remained classified as threatened, while the western DPS was reclassified as endangered due to persistent declines. Critical habitat was designated on August 27, 1993, based on the location of terrestrial rookery and haul out sites, spatial extent of foraging trips, and availability of prey. No critical habitat for this species occurs in Washington. Steller sea-lions can occasionally be observed in the marine waters around Patos Island, but they are more often found along the outer coast (NMFS 2008).

Bald and Golden Eagles

Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle was delisted in 2007; however, the protections outlined in the Bald and Golden Eagle Protection Act still apply. Patos Island is utilized year-round by bald eagles due to the abundance of large trees with open canopies and large lateral limbs in proximity to fertile foraging grounds. There are two primary nest sites within the analysis area, and three alternate sites that are occasionally used (WDFW 2012). The nest nearest to the action area is tucked back in a cove approximately 1,400 feet east of the action area; the other primary and alternate nest sites occur along the east end of the island and range from 4,000 to 5,000 feet from the action area. All of these nests are adequately screened from the action area due to the vegetation between the nests and the action area.

Golden Eagle (*Aquila chrysaetos*)

Golden eagles have not been documented utilizing Patos Island, but they are known to occur in San Juan County. The nearest golden eagle nest site is approximately 14 miles away on San Juan Island (WDFW 2012).

Migratory Birds

The analysis area is used by both neotropical migrant songbirds and migratory waterfowl. Species strongly associated with old-growth and other forested habitats, such as Vaux's swift (*Chaetura vauxi*), purple martin (*Progne subis*), olive-sided flycatcher (*Contopus cooperi*), and pileated woodpecker (*Dryocopus pileatus*), are likely to be encountered. Peak usage of the area by neotropical migrants is expected to occur between mid-June and early August for those species that breed on the island, but may be earlier for those passing through en route to other breeding areas. Migratory waterfowl such as the harlequin duck (*Histrionicus histrionicus*) are typically only present in winter months as they move inland to breed in the summer.

Bats

While four bat species were identified for consideration, only two of those species, Townsend's big-eared bat (*Corynorhinus townsendii*) and long-legged myotis (*Myotis volans*), are likely to occur in the analysis area. Both of these species utilize a variety of roosts, including caves, mines, trees and human-made structures. No bats have been observed utilizing the existing structures that are slated for removal.

3.5.2. Direct and Indirect Effects from No Action Alternative

Under the no action alternative, routine maintenance would continue to occur as described at these sites. There would be no direct effects from this activity but indirect noise disturbance from pumping and other activities would continue. Given the current level of visitor use, these

activities are a discountable fraction of the overall baseline disturbance level. Even complete cessation of all maintenance activities would not significantly alter ambient disturbance levels.

3.5.3. Direct and Indirect Effects from Proposed Action Alternative

Species specific effects are discussed in appendix D. In general the direct effects of the proposed action would be limited to the action area during construction-related activities. Approximately 200 square feet of herbaceous vegetation and woody debris would be permanently removed to accommodate the proposed facilities. The overall loss of habitat would be partially offset by the removal of the existing facilities and reclamation of those sites (approximately 80 square feet) by native vegetation. Overall, these activities would result in a net loss of habitat of approximately 120 square feet. Thus, in the context of available habitat within the analysis area, the proposed action would not result in a significant loss of habitat.

The indirect effects of the proposed action would include short-term noise disturbance associated with construction activities. These effects would be greatest in the action area, but would attenuate as a function of distance from the point source. This may cause some species to alter their behavior to avoid the action area during periods of construction, while other species would become desensitized and would continue using the area. These effects would be temporary and any displaced species would be expected to return once construction activities cease. Thus, significant impacts due to temporary disturbance are not expected for wildlife in the analysis area.

Federally Listed Species

Marbled Murrelet

No direct effects are expected for this species because construction activities would not result in the destruction or adverse modification of designated critical habitat. While Patos Island is not currently used by nesting murrelets, this activity would not alter the suitability of any habitat that could potentially be utilized by murrelets in the future. Indirect effects from noise associated with construction would vary depending on the distance from the action area. Based on the methods described and the potential for dampening by forest vegetation, this disturbance is unlikely to significantly alter the foraging behavior of murrelets. Thus overall, the proposed project would have no effect on marbled murrelets or designated critical habitat for this species.

Short-Tailed Albatross

The proposed action would have no effect on this species based on the reasoned assumption that it is unlikely to occur in the project area. Should this species be observed by BLM or WA State Park's staff, construction activities will be immediately halted until the bird has left the area.

Orca

Overall, the proposed action would have no effect on this species. The loss of habitat identified as a direct effect is not applicable to a marine mammal. Additionally, the indirect effects of noise associated with construction activities are unlikely to cause avoidance of the area or alter this species' behavior.

Steller Sea Lion

Overall, the proposed action would have no effect on this species. The loss of habitat identified as a direct effect would not occur in areas utilized by this species. The potential for the indirect effects of noise associated with construction is limited because this species is rare in the project area. In addition to primarily utilizing the outer coast, most Steller sea lions occupy rookeries from late May to early July, which is the breeding and pupping season. There are no rookeries located in Washington (NMFS 2008).

Bald and Golden Eagles

Bald Eagle

No direct effects associated with the removal of suitable habitat are expected for this species. Construction activities would not result in the loss or modification of any suitable nesting or perching sites. Indirect effects of noise and human activity associated with construction activities are expected, but these effects would be minimized because the proposed action is consistent with the management recommendations for bald eagles outlined in WDFW (2004).

The WDFW recommends that activities that significantly alter the landscape or vegetation not be conducted within 120 meters (400 feet) of a nest. This area is referred to as the primary protection zone. At distances between 100 and 240 meters (330 and 800 feet), which is referred to as the conditioned zone, the WDFW recommends avoiding noisy or intrusive activities. As mentioned in the affected environment, the nearest bald eagle nest is approximately 1,400 feet from the action area and is adequately screened by vegetation. Because the eagles that utilize this nest have been conditioned to the current level of human disturbance and the proposed activities are not within either the primary protection or conditioned zones, the indirect effects of noise and human activity are not expected to increase eagles' flush and agitation response or lead to nest abandonment or failure (WDFW 2004).

Golden Eagle

No direct effects were identified for this species. No nest or suitable habitat for this species will be removed or altered. Indirect effects of noise and human activity associated with construction activities could cause avoidance of the action area during implementation if the species is present. Given the lack of preferred foraging habitat in the area and the distance from the nearest nest (14 miles), indirect effects are unlikely for this species.

Migratory Birds

Species-specific effects for migratory birds are discussed in appendix D. While not every species with the potential to occur in the area is included in appendix D, the effects described are applicable to species utilizing similar habitats. The direct effects associated with the loss of habitat would be limited to those species utilizing terrestrial habitat for nesting or foraging. This would include a total loss of approximately 200 square feet of herbaceous cover and woody debris. Because the sites to be reclaimed may not be suitable for several years, the entire disturbance is being included. Since the majority of Patos Island consists of similar understory vegetation, this represents a .002 percent decrease of the estimated 9 million square feet of available habitat.

Individual nests occurring in the action area could be directly affected during site preparation and clearing. This would primarily affect ground and shrub nesting species such as warblers and

sparrows that nest in herbaceous cover or woody debris. Mortality of adult birds is not expected due to their tendency to flush; however, nests or young could be inadvertently destroyed. Because many passerine species are capable of four to eight nesting attempts per breeding season, loss of an individual nest within the 200 square feet of disturbance would not result in measurable changes to the overall abundance or distribution for a species (Grzybowski and Pease 2005).

Indirect effects from noise and human activity associated with construction would cause some species to avoid the area of disturbance for the duration of implementation, while other species would become desensitized and would continue to occupy portions of the analysis area during implementation. These effects would be temporary, and any displaced species would be expected to return once construction activities cease. Thus, significant impacts due to temporary disturbance are not expected for migratory birds occurring in the analysis area.

Bats

No direct effects are expected for the Townsend's big-eared bat or long-legged myotis because no occupied structures or suitable habitat for roosting will be removed. While no use of the existing structures slated for removal has been documented, these sites will be double checked prior to removal. In the event these structures are found to be occupied, they will not be removed without further coordination with staff biologists.

Indirect effects from noise and human activity associated with construction could disturb bats roosting in the action area. Some species would seek alternate roost sites for the duration of implementation but other species would become desensitized and would continue to occupy portions of the analysis area. These effects would be temporary, and any displaced species would be expected to return once construction activities cease. Because construction activities would only be conducted during the daytime, these activities would not impact nocturnal foraging behavior. Thus, significant impacts due to temporary disturbance are not expected for bats occurring in the analysis area.

3.5.4. Cumulative Effects

The cumulative effects of the proposed action on wildlife resources include consideration of the past, present, and reasonably foreseeable future actions in the analysis area. Past actions are incorporated in the environmental baseline (described above), and present actions include only the proposed action. At this time, no additional projects are planned for the analysis area. Because the direct and indirect effects of the proposed project would have no effect on population trends for any of the species considered or significantly alter the availability of suitable habitat (see section 3.5.3.), no effects to the wildlife portion of the human environment are predicted as cumulative effects of this action. Based on the current recreational use and travel to and from the island, the proposed action will not have a discernible effect on wildlife resources.

4. Consultation and Coordination

The BLM initiated cultural resource consultations for this project on January 25, 2011; letters were sent to the Washington State Department of Archaeology and Historic Preservation (DAHP), the Lummi Nation, the Samish Indian Nation, and the Swinomish Indian Tribal Community. On February 2, 2011, the DAHP responded, concurring with the definition of the areas of potential effect (APEs). The Swinomish Indian Tribal Community also responded on February 2, 2011, in support of the project; no concerns were offered at that time. A response was received from the Samish Indian Nation on February 17, 2011; the tribe also did not have any concerns at that time. A response was not received from the Lummi Nation. On March 14, 2012, the BLM contacted the parties mentioned above, requesting a concurrence from the DAHP with its determination of “no effect” upon historic properties. On March 26, 2012, the DAHP concurred with this determination. A response was received from the Samish Indian Nation on March 20, 2012, also concurring with the determination of “no effect.” No other responses were received.

5. List of Preparers

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References Cited

- Arnett, J. 2001. Native Plant List Vascular Plant List Patos Island. Washington Native Plant Society (WNPS). Retrieved from www.wnps.org/plant_lists/counties/san_juan/documents/PatosIsland.pdf
- Booth, D. Montgomery, Bolton, Booth, and Wall (Eds.). 2003. The Geology of Puget Lowland Rivers. University of Washington Press, pp.194-225.
- Burke Museum of Natural History and Culture. 2010. Floristic Atlas of the San Juan Islands, Washington. Retrieved from <http://biology.burke.washington.edu/herbarium/resources/sanjuanatlas.php>.
- Camp, P. and Gamon, J. (Eds.). 2011. Field Guide to the Rare Plants of Washington, 1st ed. University of Washington Press. Seattle, WA.
- Chappell, C. 2006. Upland Plant Associations of the Puget Trough Ecoregion, Washington. WDNR, Natural Heritage Program, Olympia, WA.
- Cornely, J. and Verts, B. 1998. Mammalian Species, No. 325, *Microtus townsendii*. American Society of Mammalogist. Retrieved from <http://www.jstor.org/stable/3504129>.
- USFWS. 2011. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Marbled Murrelet. Federal Register Vol. 76, No. 193, 50 CFR Part 1.
- USDI. 1983. Transition Period. 48 FR 20368, May 5, 1983 Part 1600, 43 CFR Public Lands: Interior. <http://www.gpo.gov/fdsys/pkg/CFR-2000-title43-vol2/pdf/CFR-2000-title43-vol2-sec1610-8.pdf>.
- Grzybowski, J. and Pease, C. 2005. Renesting Determines Seasonal Fecundity in Songbirds: What Do We Know? What Should We Assume? University of California Press. Retrieved from <http://www.jstor.org/stable/4090365>.
- Hitchcock, C. and A. Cronquist. (1973). Flora of the Pacific Northwest. University of Washington Press, Seattle, 730 pp..
- Lance, M., S. Richardson, and H. Allen. 2004. Washington state recovery plan for the sea otter. Washington Department of Fish and Wildlife, Olympia. 91 pp.
- NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Retrieved from <http://www.natureserve.org/explorer>.
- Sabine, S. 2010. Personal communication. Washington State Parks. October 2010.

Smith, M., P. Mattocks, Jr., and K. Cassidy. 1997. Breeding Birds of Washington State. Volume 4 in Washington State Gap Analysis- Final Report. Seattle Audubon Society Publications in Zoology No. 1, Seattle, 538pp.

Suttles, W. 1990. Central Coast Salish. In Handbook of North American Indians. Vol. 7. Smithsonian Institution. Washington, DC.

Sweeney, F. BLM Report #130110501 A Cultural Resources Survey on Bureau of Land Management Lands in the Patos Island Composting Toilet Project Area, San Juan County, Washington. Internal Document. Wenatchee Field Office BLM.

Washington Herp Atlas, (2009). Washington Natural Heritage Program (WNHP), Washington Dept. of Fish & Wildlife (WDFW), U.S.D.I. Bureau of Land Management(BLM) and US Forest Service (USFS). Retrieved from <http://www1.dnr.wa.gov/nhp/refdesk/herp/>.

Washington Natural Heritage Program (WNHP). 2010. List of Known Occurrences of Rare Plants in Washington, San Juan County. Retrieved from <http://www1.dnr.wa.gov/nhp/refdesk/plants.html>.

Washington State Department of Health. 1989. Washington State Guidelines for Composting Toilets. Retrieved from <http://192.211.16.13/curricular/energies/Aprojfolder/selfhouse/toiletsguide.html#I.%20%20%20Introduction>.

Washington State University. Washington State & San Juan County Noxious Weed List. 2012. http://sanjuan.wsu.edu/noxious/documents/2012_SJCNoxiousWeed_List.pdf

WDFW. E. Larsen, J. M. Azerrad, N. Nordstrom, editors. 2005. *Corynorhinus townsendii* Management Recommendations for Washington's Priority Species, Vol. V Mammals. WDFW, Olympia, Washington, USA.

WDFW. 2008. Priority Habitats and Species List (PHS) Olympia, Washington. 176 pp. Retrieved from wdfw.wa.gov/publications/00165/wdfw00165.pdf

WDFW. 2004. Management Recommendations for Washington's Priority Species, Volume IV: Birds. E. Larsen, J. Azerrad, and N. Nordstrom, editors. Olympia, Washington, USA.

USDI BLM. 2006. Fire History Analysis for Patos Island, Washington. Internal Document. Wenatchee Field Office San Juan Islands BLM.

USDI. 2006. Recreation Management Information System (RMIS). Internal Document. Wenatchee Field Office BLM.

USDI BLM, 2011b. Instruction Memorandum No. OR-2012-018, Final State Director's Special Status Species List. Internal Document. Wenatchee Field Office BLM.

USFWS. 2012. Species Fact Sheets. Retrieved from <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?scode=I0T6>.

USFWS. 2010. Listed and Proposed Endangered and Threatened Species and Critical Habitat and Species of Concern in San Juan County. Retrieved from http://www.fws.gov/wafwo/speciesmap_new.html.

USFWS. 1997. Recovery Plan for the Threatened Marbled Murrelet (*Brachyramphus marmoratus*) in Washington, Oregon, and California. Portland, Oregon. Retrieved from www.fws.gov/oregonfwo/Species/Data/MarbledMurrelet/

USFWS. 2001. Short-tailed Albatross (*Phoebastria albatrus*) Threatened and Endangered Species. Retrieved from <http://alaska.fws.gov/fisheries/endangered/pdf/STALfactsheet.pdf>

USFWS. 2011. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Marbled Murrelet. Federal Register. Volume 76, number 193, October 5, 2011

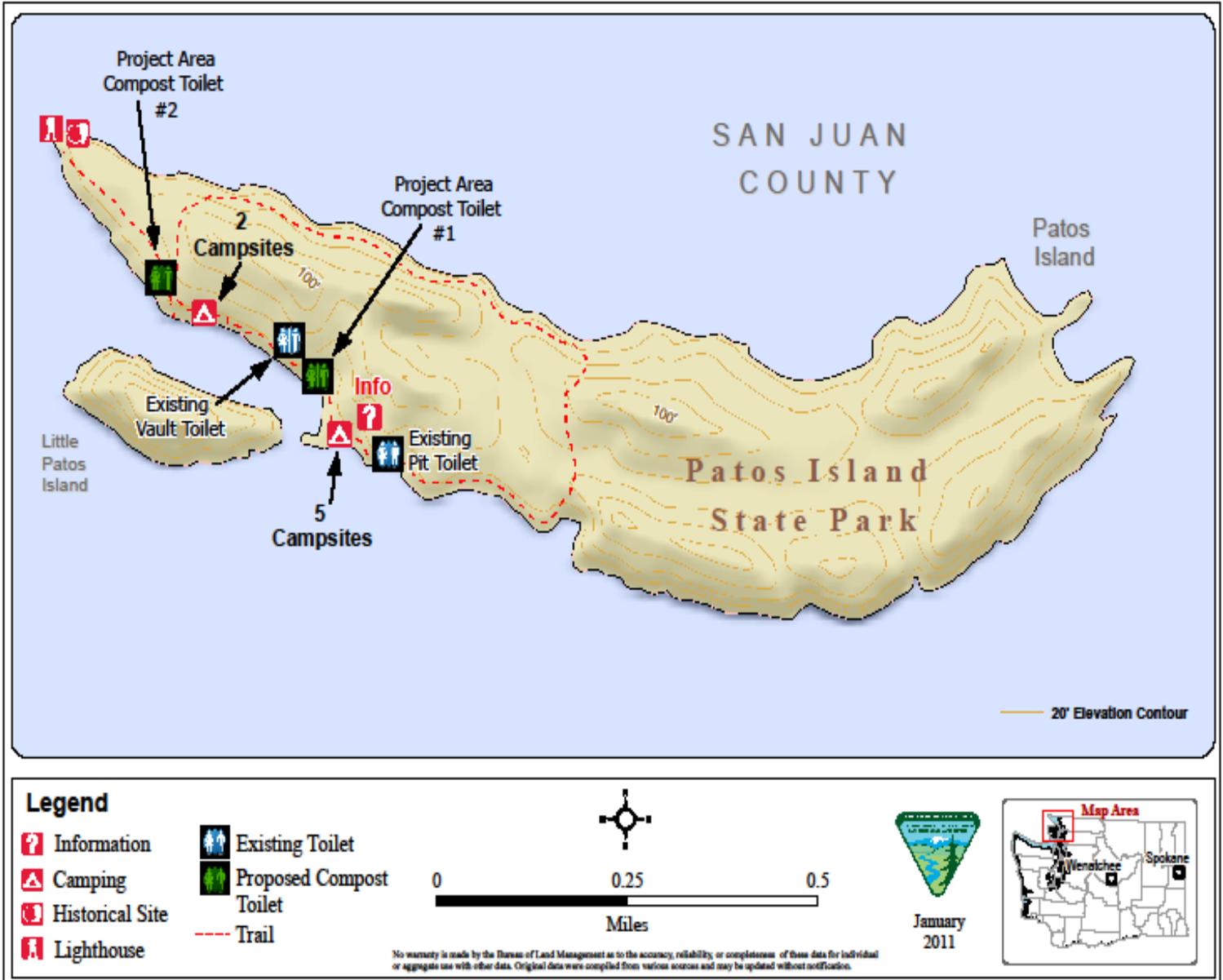
NMFS (U.S. National Marine Fisheries Service). 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). Retrieved from www.nmfs.noaa.gov/pr/pdfs/recovery/whale_killer.pdf

NMFS (U.S. National Marine Fisheries Service). 2008. Recovery Plan for the Stellar Sea Lion, Eastern and Western Distinct Population Segments (*Eumetopias jubatus*). Retrieved from alaskafisheries.noaa.gov/.../stellers/recovery/sslrpfinalrev030408.pdf

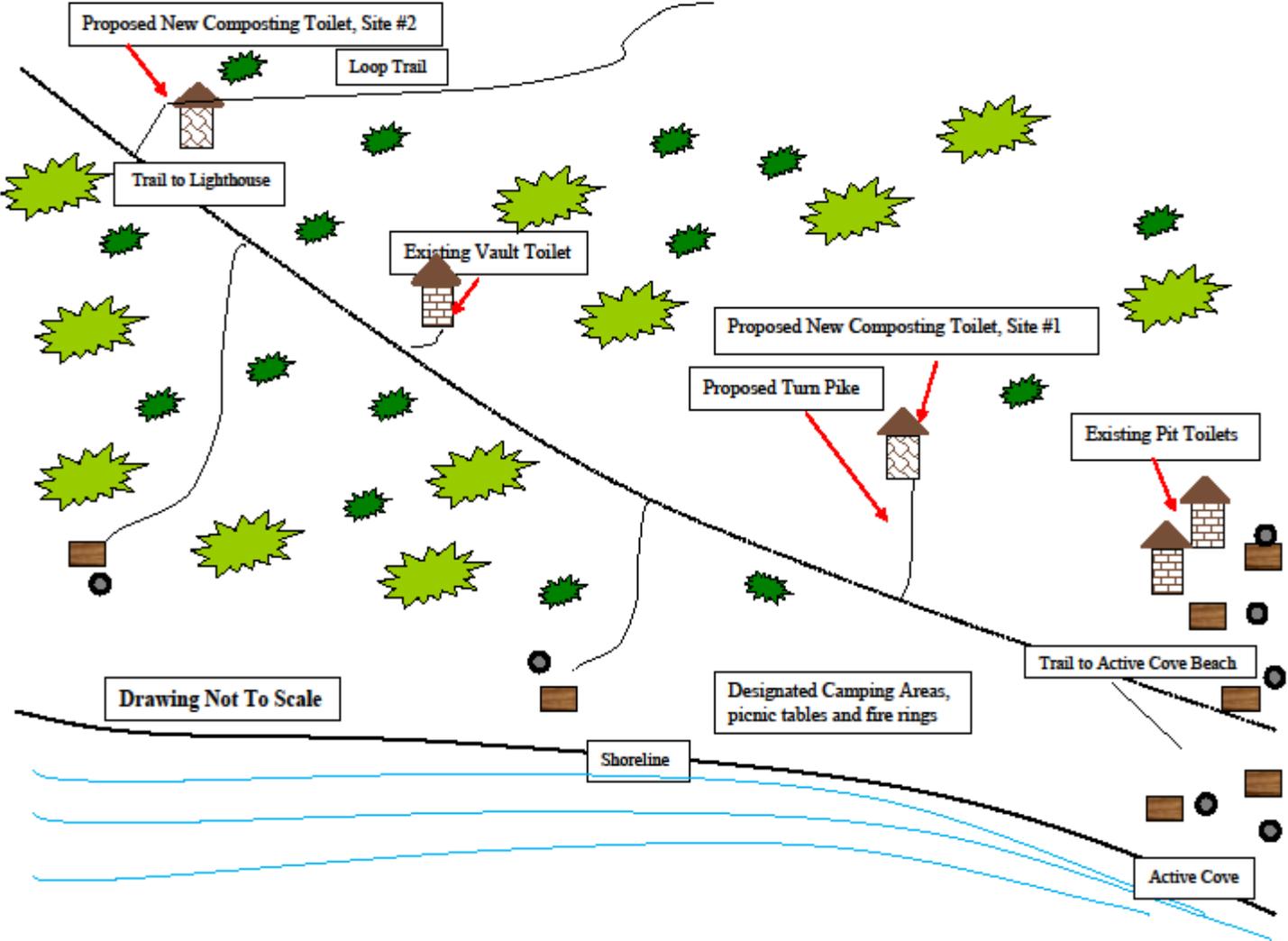
WDFW. 2012. Washington Department of Fish and Wildlife, Priority Habitat and Species Occurrence Data. GIS Data shared with BLM bi-annually and stored in Corporate Databases. Wenatchee Field Office BLM.

Appendix A: Patos Island Project Map

Patos Island Composting Toilets
T. 38 N, R. 2 W, Section 16, Patos Island



Appendix B: Patos Island Composting Toilet
Project Drawings and Photos



Project Photos



Existing pit toilets, removal, two each



Composting toilet unit

Composting holding area

Example of a single composting toilet

Appendix C: Special Status Plants

Brief description of project area habitat: The windward forest contains an overstory of predominantly Douglas-fir, with small quantities of lodgepole pine, western red cedar, Pacific madrone, and quaking aspen. The understory is mostly thick salal with some rose, kinnikinnick, salmonberry, and grasses. This forest type occurs on dry sites with very shallow soils (USDI BLM 2006). In addition, Chappell (2006) describes the plant association habitats as mostly either moderately dry sites within dry climatic zones or very dry sites elsewhere, and they appear to be relatively nutrient-poor (Chappell 2006). Both toilet locations are in mostly closed canopy forested areas. The following list of rare plants known to occur in San Juan County, Washington, is taken from the Washington Natural Heritage Program Information System (<http://www1.dnr.wa.gov/nhp/refdesk/lists/plantsxco/san.html>).

Scientific Name	Common Name	State Status	Federal Status	Historic Record	Habitat	Potential for effect/Rationale	Source
<i>Carex pauciflora</i>	few-flowered sedge	S			Wet acidic environments at low to middle elevations, including sphagnum bogs and acidic peat; usually on open mats, but also in partial shade, 75 to 1390 meters.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not a wet environment).	Camp, Gamon
<i>Castilleja levisecta</i>	golden paintbrush	E	LT		Open grasslands in the Puget Trough low-lands, generally on glacial outwash or depositional material, 3 to 90 meters. Does not tolerate a closed canopy.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not an open grassland).	Camp, Gamon

<i>Crassula connata</i>	erect pygmy-weed	T			In dry areas that may be seasonally moist, including chaparral and wet to moist vernal pools on coastal bluffs, 4 to 30 meters. Found coastally on seasonally wet cliffs, rock outcrops, and steep slopes.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not on cliffs or outcrops).	Camp, Gamon
<i>Eurybia merita</i>	Arctic aster	S			Open rocky places, rock crevices, alpine lithosols, and unstable talus slopes, mostly at high elevations in the mountains from 700 to 2300 meters.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not open rocky).	Camp, Gamon
<i>Isoetes nuttallii</i>	Nuttall's quillwort	S			Terrestrial in seasonally wet ground, seepages, temporary streams, and mud near vernal pools. Typically at low to middle elevations; documented elevations in WA are 60 to 105 meters.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not a wet environment).	Camp, Gamon
<i>Lepidium oxycarpum</i>	sharpfruited peppergrass	T			Coastal, found in the salt spray zone, growing in moist cracks and vernal pools on bedrock, in sandy or dark saline soil in full sun.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not coastal in spray zone).	Camp, Gamon

<i>Liparis loeselii</i>	twayblade	E			Springs, bogs, wetlands, and wet sunny places in Douglas fir forests.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not a wet environment).	Camp, Gamon
<i>Lobelia dortmanna</i>	water lobelia	T			Generally in shallow water at the margins of lakes and ponds, but it can grow at depths of 8-10 feet.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not a wet environment).	Camp, Gamon
<i>Meconella oregana</i>	white meconella	T	SC		Primarily in open grassland; sometimes within a mosaic of forest and grassland on gradual to almost 100% slopes. Habitats are wet to moist in spring, but dry by early summer.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not open grassland).	Camp, Gamon
<i>Microseris bigelovii</i>	coast microseris	X		H	Grasslands on old dunes, glacial deposits, in small crevices, and on rock, usually with very little soil, 2 to 3 meters above the high tide line.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not open grassland).	Camp, Gamon
<i>Ophioglossum pusillum</i>	Adder's-tongue	T			Seasonally wet areas in pastures, old fields, roadside ditches, bogs, fens, wet meadows, flood plains, moist	No effect. No documented occurrences on Patos Island. Habitat not	Camp, Gamon

					woods, grassy swales, dry or damp sand, dry hillsides, and in seasonally wet, acidic soil.	suitable (not a wet environment).	
<i>Orthocarpus bracteosus</i>	rosy owl-clover	E		H	Extant sites in WA are all associated with moist meadows in the transition zone between wetland and upland; they are dominated by grasses and forbs, in full sunlight with little to no shrub or tree cover.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not a moist meadow transition zone).	Camp, Gamon
<i>Oxytropis campestris var. gracilis</i>	slender crazyweed	S			Prairies, alpine meadows, open woodlands, and gravelly flood plains in moist or dry soils. Also found in San Juan Co., in open grasslands and on steep, dry, south-facing rock outcrops with shallow soil and some herbaceous cover, often in the salt spray zone.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not an open grassland).	Camp, Gamon
<i>Packera macounii</i>	Siskiyou Mountain ragwort	R1			Open woods and dry open places (Hitchcock, Senecio macounii)	No effect. No documented occurrences on Patos Island. Habitat not suitable (not open and dry).	

<i>Potamogeton obtusifolius</i>	blunt-leaved pondweed	S			Submerged on banks of lakes, sloughs, and slow-flowing streams in 1 to 4 meters of water.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not submerged).	Camp, Gamon
<i>Ranunculus californicus</i>	California buttercup	T			Coastal bluffs, open grasslands, rocky slopes along the shore, and rocky wooded areas. Usually in dry grassland areas, but also found in moister sites.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not coastal, open grassland, or rocky wooded area).	Camp, Gamon
<i>Sericocarpus rigidus</i>	white-top aster	S	SC		Relatively flat, open grasslands of lowlands, usually in gravelly, glacial outwash soils. Elevations in WA 10 to 170 meters. Habitats are seasonally mesic but dry during late summer.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not open grassland).	Camp, Gamon
<i>Symphotrichum boreale</i>	rush aster	T			Lakesides, marshes, bogs, and fens, including calcareous bogs and fens, open peatland, and sedge-dominated open sphagnum bogs.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not a wet environment).	Camp, Gamon

<i>Utricularia minor</i>	lesser bladderwort	R1			Occurs in low nutrient lakes and peatbog pools in the lowland and montane zones at elevations from 40 to 1200 meters in WA.	No effect. No documented occurrences on Patos Island. Habitat not suitable (not a wet environment).	2005 WNHP
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State Status

The **state status** of plant species is determined by the Washington Natural Heritage Program. Factors considered include abundance, occurrence patterns, vulnerability, threats, existing protection, and taxonomic distinctness. Values include:

E = Endangered. In danger of becoming extinct or extirpated from Washington.

T = Threatened. Likely to become endangered in Washington.

S = Sensitive. Vulnerable or declining and could become endangered or threatened in the state.

X = Possibly extinct or extirpated from Washington.

R1 = Review group 1. Of potential concern but needs more field work to assign another rank.

R2 = Review group 2. Of potential concern but with unresolved taxonomic questions.

Federal Status

The **federal status** under the Endangered Species Act as published in the Federal Register:

LE = Listed endangered. In danger of extinction.

LT = Listed threatened. Likely to become endangered.

PE = Proposed endangered.

PT = Proposed threatened.

C = Candidate species. Sufficient information exists to support listing as endangered or threatened.

SC = Species of concern. An unofficial status indicating that the species appears to be in jeopardy but there is insufficient information to support listing.

Historic Record

H = Indicates most recent sighting in the county is before 1977.

Appendix D: Sensitive Wildlife Species and Effects Determination (from <http://wdfw.wa.gov/conservation/phs/list/>)

Scientific Name	Common Name	Federal Status	State Status	Potential for Effect/Rationale
<i>Bufo boreas</i>	Western toad	Species of concern	Candidate	No effect. Most recent record of occurrence for San Juan county is 1939, no documented occurrences on Patos Island.
<i>Phalacrocorax penicillatus</i>	Brandt's cormorant	None	Candidate	No effect. No nesting areas are known to occur in San Juan County. Locally common species, but typically found along the outer coast.
<i>Ptychoramphus aleuticus</i>	Cassin's auklet	Species of concern	Candidate	No effect. Typically found on outer coasts. Birds found in inland waters are nonbreeding birds.
<i>Uria aalge</i>	Common murre	None	Candidate	No effect. Typically found on outer coasts.
<i>Brachyramphus marmoratus</i>	Marbled murrelet	Threatened	Threatened	No effect. Marbled murrelets may be found in the marine waters surrounding Patos Island, but they are not known to nest or roost on the island itself. Construction activities on Patos would not be expected to significantly alter

				<p>the behavior of birds foraging within the 1-mile buffer around the action area.</p> <p>Additionally, this project would not result in the loss of suitable habitat or the destruction or adverse modification of designated critical habitat. Because the marine waters of San Juan County are navigable waters that are open to licensed watercraft and the transportation of materials to and from Patos Island would be done in accordance with WA laws, this activity is not being analyzed.</p>
<i>Phoebastria albatrus</i>	Short-tailed albatross	Endangered	Candidate	No effect. Extremely rare transient not known to breed in WA.
<i>Fratercula cirrhata</i>	Tufted puffin	None	Candidate	No effect. Only known breeding colony in San Juan County occurs on Colville Island, south of Lopez and more than 20 miles from Patos Island.

<i>Aechmophorus occidentalis</i>	Western grebe	None	Candidate	No effect. Typically moves inland to freshwater to breed. Locally common on large ponds and reservoirs in areas of eastern WA.
<i>Haliaeetus leucocephalus</i>	Bald eagle	Species of concern	Sensitive	Discussed in the EA.
<i>Aquila chrysaetos</i>	Golden eagle	Bald/Golden Eagle Protection Act	Candidate	No effect. Nearest nest is on San Juan Island, about 14 miles away.
<i>Falco peregrinus</i>	Peregrine falcon	Species of concern	Sensitive	No effect. Does not nest on Patos Island, nor is there suitable nesting habitat. Nearest nest is 5 miles to the south on Orcas Island and the closest observed foraging is off Sucia Island about 2 miles southeast of Patos Island.
<i>Coccyzus americanus</i>	Yellow-billed cuckoo	Candidate	Candidate	No effect. Riparian obligate; no suitable breeding habitat on Patos Island. Extirpated as a breeder in WA.

<i>Chaetura vauxi</i>	Vaux's swift	MBTA	Candidate	<p>Potential to disturb individuals, if present. However, this species often nests in residential chimneys and can tolerate moderate levels of disturbance. Possible breeding evidence on Sucia Island, 2 miles to the southeast of Patos Island.</p> <p>Associated with old-growth forests where they nest and roost in hollow chambers created by pileated woodpeckers.</p> <p>Because no trees or snags will be removed during construction, this project is not expected to result in a single nest failure.</p>
<i>Dryocopus pileatus</i>	Pileated woodpecker	MBTA	Candidate	<p>Potential to disturb individuals, if present. However, this species often inhabits residential areas and can tolerate moderate levels of disturbance. Large snags and large decaying live trees in older forests are used for nesting and roosting throughout their range. No suitable nesting or roosting habitat would be removed, thus the project is not expected</p>

				to result in a single nest failure.
<i>Pooecetes gramineus affinis</i>	Oregon vesper sparrow	Species of concern	Candidate	No effect. Not documented or expected to occur in the project area. There is a stable population on San Juan Island, about 14 miles away and unconfirmed breeding evidence on Orcas Island, about 5 miles to the south.
<i>Progne subis</i>	Purple martin	MBTA	Candidate	Potential to disturb individuals, if present, but nearest confirmed breeding is on San Juan Island. This species often inhabits residential areas and can tolerate moderate levels of disturbance. Nests and roosts in cavities of large snags and large decaying live trees created by pileated woodpeckers or flickers. No suitable nesting or roosting habitat would be removed, thus the project is not expected to result in a single nest failure.

<i>Contopus cooperi</i>	Olive-sided flycatcher	Species of concern	None	Potential to disturb individuals, if present. Species is common in most forested areas of WA. No suitable nesting or roosting habitat would be removed, thus the project is not expected to result in a single nest failure.
<i>Histrionicus histrionicus</i>	Harlequin duck	BLM sensitive	None	No effect. Generally a winter resident that moves to swift torrents and rapid streams to breed (May-June initiation).
<i>Accipiter gentilis</i>	Northern goshawk	Species of concern	Candidate	No effect. Outside range of known breeding areas.
<i>Haliotis kamtschatkana</i>	Pinto (northern) abalone	Species of concern	Candidate	No effect. Predominantly found in kelp beds along outer well-exposed coasts; typically low intertidal to 9 meters depth, but ranges to 100 m depth
<i>Ostrea conchaphila</i> -	Olympia oyster	None	Candidate	No effect. Marine mollusk found in intertidal to 10 meters.

<i>Oeneis nevadensis gigas</i>	Great arctic	None	Candidate	Limited information on subspecies distribution. Often found on bare mountain summits such as Mt. Constitution on Orcas Island. Not documented on Patos Island, but if present, host plants with larvae could be disturbed during implementation.
<i>Euchloe ausonides insulanus</i>	Island marble	Species of concern	Candidate	No effect. Based on extensive surveys in 2005, this subspecies appears to be limited to San Juan and Lopez Islands in WA.
<i>Copablepharon fuscum</i>	Sand-verbena moth	None	Candidate	No effect. Not expected to occur within project area. Neither the moth, nor its host plant, coastal sand verbena (<i>Abronia latifolia</i>), has been documented on Patos Island.
<i>Speyeria zerene bremnerii</i>	Valley silverspot	Species of concern	Candidate	No effect. This species is not known or expected to occur in the project area. The only known host plant for this species is the western blue violet (<i>Viola adunca</i>), which has not been documented on Patos

				Island.
<i>Euphydryas editha taylori</i>	Taylor's checkerspot (formerly Whulge checkerspot)		Endangered	No effect. Not expected to occur in the project area. Potentially occurs in the following Washington counties: Clallam, Thurston, and Pierce.
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	Species of concern	Candidate	No effect. This species uses caves, mines, hollow trees, and built structures for roosting. None of the structures that will be removed for this project are currently used by roosting bats and no suitable habitat for roosting, such as trees, will be removed for this project.
<i>Myotis keenii</i>	Keen's long-eared bat (formerly Keen's myotis)	Check BLM list	Candidate	No effect. Unlikely to occur in project area. This species has one of the smallest distributional ranges of any North American bat and is only documented at a few sites in western Washington (Jefferson and Clallam Counties).

<i>Myotis evotis</i>	Western long-eared bat	Species of concern	None	No effect. Not known or believed to occur in San Juan County.
<i>Myotis volans</i>	Long-legged myotis	Species of concern		No effect. None of the structures that will be removed for this project are currently used by roosting bats and no suitable habitat for roosting, such as trees, will be removed for this project.
<i>Microtus townsendii pugetii</i>	Shaw Island vole	BLM sensitive	None	No effect. Does not occur in project area. Subspecies only occurs on Shaw, San Juan and Cypress Islands in San Juan County.
<i>Enhydra lutris</i>	Northern sea otter	Species of concern	Endangered	No effect. The species is quite rare in the archipelago with only a few incidental sightings of individuals documented. Since reintroductions began for this species in 1969, their core range has remained primarily on the Olympic Peninsula, west of Port Angeles and south to Destruction Island (WDFW 2004).
<i>Eschrichtius robustus</i>	Gray whale	MMPA	Sensitive	No effect. Construction activities will be completed on

				land. Boat travel to and from the island for completion of this project would not be distinguishable from current baseline.
<i>Orcinus orca</i>	Orca (killer whale)	Endangered	Endangered	No effect. Construction activities will be completed on land. Boat travel to and from the island for completion of this project would not be distinguishable from current baseline.
<i>Phocoena phocoena</i>	Pacific harbor porpoise	MMPA	Candidate	No effect. Construction activities will be completed on land. Boat travel to and from the island for completion of this project would not be distinguishable from current baseline.
<i>Eumetopias jubatus</i>	Steller (northern) sea lion	Threatened (eastern DPS)	Threatened	No effect. Construction activities will be completed on land. Boat travel to and from the island for completion of this project would not be distinguishable from current baseline.

<i>Contia tenuis</i>	Sharptail snake	Species of concern	Candidate	No effect. Construction activities will be completed on land. Boat travel to and from the island for completion of this project would not be distinguishable from current baseline.
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Appendix E: Washington State Guidelines for Composting Toilets Monitoring Form

Unit #: _____ Today's date: _____

Date of installation: _____

Next scheduled date of monitoring:

- Two (2) years after installation: _____
- Four (4) years after installation: _____
- In response to a complaint or problem: _____

Description of complaint or problem: _____

The minimum criteria that should be addressed in performance monitoring for composting toilets are:

Age of system: _____

Type of use: _____

Name brand, if appropriate: _____

Nuisance, such as flies, odors, or other user complaints: _____

Moisture imbalance, such as too wet or too dry: _____

Mechanical malfunctions, such as stirrer arms or gates: _____

Electrical malfunctions (other than a pump switch): _____

Material fatigue or failure, as related to construction, design, durability, or corrosion, or improper installation (temperature control, insulation): _____

Neglect or improper use, inadequate maintenance, deposition of non-decomposable materials:

When problems are identified, a brief narrative describing the problem and indicating the frequency (frequent, episodic, or rare) and duration of problem: _____

Completed forms shall be submitted to the San Juan Public Health Department:

Date submitted: _____

Name of monitor: _____ Phone #: _____