APPENDIX B

Plants and Animals – Port Ludlow Resort
Regional Conditions
GeoEngineers
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Port Ludlow Plants and Animals – Regional Conditions
GeoEngineers, February 2004

Plants and Habitats

The Port Ludlow Resort site falls within the Puget Sound lowlands, a region dominated by forest communities. Weather systems moving inland from the Pacific Ocean create moisture and temperature regimes ideally suited for the establishment and growth of coniferous forests.

Vegetation in the area is classified as the Western Hemlock Zone, the most extensive vegetation zone in western Washington. In their old growth condition, forests in this zone are typically dominated by western hemlock and Douglas fir. However, the area around Port Ludlow has been extensively logged over the past century, and much of it is now dominated by mixed second-growth forest. Portions of the area more recently logged by clearcutting are in earlier stages of forest development dominated by shrubs or young trees. Logging roads and trails are common in the area.

While mixed conifer and deciduous forests dominate the upland portions of the region, depressions and lower elevation sites support a variety of wetland communities. Grasslands, shrublands, and other non-forest or non-wetland communities also occur in the area.

The following sections describe the major types of vegetation cover and wildlife habitat in the region.

Marine Shorelines

The shoreline along Port Ludlow Bay is classified as a marine, intertidal, rocky shoreline. Rock rip-rap and various types of seaweed and filamentous algae are common shoreline features near the marina. A recent assessment of marine vegetation in Port Ludlow Bay is included in the Port Ludlow Marina Expansion Draft SEIS (Reid Middleton, 2002a).

Streams and Ponds

The Ludlow Creek subbasin is the largest drainage within the Port Ludlow Bay watershed and contributes the greatest discharge of fresh water to the bay (Reid Middleton, 2002a). The Ludlow Creek mainstem is approximately 4.5 miles in length with an additional 8.25 miles in tributaries (Correa, 2002). It has an intact floodplain in its lower reaches, with good instream habitat, stable banks and functional riparian condition. However, a culvert inhibits estuary function, and a right bank tributary has been characterized as having a chronic erosion and slope failure problem. In the upper watershed, riparian conditions are fair but often degraded in previously logged and active agricultural areas. A waterfall located about 1,800 feet upstream of the mouth of the creek and a number of culverts in the upper watershed present total and partial barriers to fish passage (Cascadia Consulting Group, 2003; Reid Middleton, 2002a).

Wetlands

The Port Ludlow area contains a number of wetlands of a variety of classifications. Most of the wetlands, particularly the smaller ones, are located in isolated depressions in forested areas. From simple to complex in composition and structure, the wetland types in the vicinity include: palustrine, open water (POW); palustrine, unconsolidated bottom (PUB); palustrine, emergent

(PEM); palustrine, scrub-shrub (PSS); and palustrine, forested (PFO) wetland. Most of the smaller wetlands contain only one type, but the larger ones may contain several types.

Uplands

Most of the area is dominated by upland forest and clearcuts in various stages of regeneration. Five general upland plant community types have been identified: coniferous; broad-leaved deciduous; mixed conifer-deciduous forest; early successional shrublands; and managed areas dominated by grasses and other herbaceous vegetation. In addition, clearing and grading activities have created some areas of mainly bare ground.

Special Habitat Features

The diversity of native wetland and upland cover types generally provides high quality wildlife habitat in the region. The presence of special habitat features, such as snags and downed logs, provides specific forest elements required by some species.

Forested areas, particularly mixed and coniferous stands, provide more snag habitat than the clearcut areas. Forested wetlands likewise contained scattered snags, although many are red alder and relatively small. The edges between clearcut and forest provide a number of snags and dead-topped trees. The younger alder stands growing in disturbed areas such as former log landings generally lacked snags altogether.

Logs are generally distributed throughout the site and occur in various sizes and stages of decay. Many are small and provide limited habitat. Larger logs, commonly in advanced stages of decay, are fewer in number and appear to be either remnants from past forest stands (prior to logging) or the result of logging slash. Clearcut areas often include old slash piles at the log landings and abundant downed woody debris scattered throughout, particularly in the areas most recently cut.

Animals

The variety of landforms, plant communities, and habitat resources in the Puget Sound region has led to the development of a diverse and varied assemblage of animals. Habitats found in the Port Ludlow area are typical of those described for the Puget Sound lowlands. The following sections discuss animal species that use the area to a substantial degree at the present time, though some species probably occur in low numbers or use the area only seasonally.

Amphibians and Reptiles

About 15 species of amphibians and reptiles are expected to occur in the area, including 6 species of salamanders, 4 species of frogs, 1 lizard, and up to 4 species of snakes.

Amphibians include salamanders, newts, and frogs. These species are adapted to life in cool, moist conditions. Almost all are carnivorous, eating mainly invertebrates and insects. They in turn are preyed upon by fish, snakes, small mammals and birds.

Reptiles include turtles, lizards, and snakes. These species are mainly adapted for life on land, with the exception of turtles. The northern alligator lizard is the only lizard thought to be present in the area. This species is common in the cool forests of the Pacific Northwest, where it lives in stumps, under logs, rocks, and in talus slopes. Several snakes are likely to be present, all in the garter snake group. These snakes are generally forest dwellers, where they prey on slugs, earthworms, salamanders, toads, frogs, small mammals, and birds. Snakes in turn are preyed upon by mammals and birds such as herons and raptors.

Fish

A description of marine fish and invertebrates known to use Port Ludlow Bay can be found in the Port Ludlow Marina Expansion Draft SEIS (Reid Middleton, 2002a). That document reported that the lower section of Ludlow Creek was used historically by coho and chum salmon as spawning and rearing habitat but is no longer believed to support native salmon runs. Small populations of coho and chum salmon spawn occasionally in the lower 1,800 feet of the creek but are blocked from migrating further upstream by a waterfall during most years. A representative of Wild Olympic Salmon noted recently that these spawning populations are not large but are self-sustaining and contribute to the overall populations of Puget Sound (Garton, 2003).

Resident cutthroat trout utilize habitat above the falls, which is characterized by numerous small lakes, such as Ludlow, Horseshoe and Teal, and many unnamed tributaries and wetlands (Correa, 2002). It is unlikely that bull trout occur in the area as Ludlow Creek does not provide suitable spawning habitat nor are there any river basins in the vicinity that are known to support bull trout. (Reid Middleton, 2002a).

Birds

A total of 180 bird species are expected to occur in the area. This number, however, includes species associated with marine or shore habitats of Port Ludlow Bay -- fewer species are expected to occupy the majority of the upland areas.

Twenty-nine species of waterfowl and 54 species of other aquatic birds (such as loons, grebes, herons, shorebirds and gulls) are expected to use habitats in the area during at least a portion of the year. The majority of these occur primarily in the marine and nearshore habitats of Port Ludlow Bay, and over half of these frequent the area only during their winter or seasonal migration periods.

Sixteen species of eagles, hawks, and owls may occur in the area. These species are generally forest dwellers that require snags for nesting sites. Because snags are limited in the area, nesting is uncommon.

Three species of upland game birds -- ruffed grouse, ring-necked pheasant (introduced), and band-tailed pigeons -- are likely to be present. In western Washington, pheasants typically occupy shrubby habitats and grouse are usually found in forested habitats. Pigeons probably use the area during spring and fall migrations.

Five species of woodpeckers are known to occur in the Port Ludlow area. Woodpeckers glean insects and larvae from on or under the bark of trees and snags. All are forest cavity-nesting species and excavate their own nest cavities in trees each year. Their numbers in the area are probably low due to a general lack of suitable (large) snags.

The order of birds known as the passerines, or perching birds, contains the largest number of families and has the most diverse range of species of any order. The passerines are generally small perching birds that exhibit a wide range of feeding modes and inhabit all cover types in the area. A wide variety of passerine species (67 total) are expected to occur in the area.

Nighthawks are insectivorous aerial foragers common in a variety of habitats in western Washington. The rufous hummingbird, a summer resident of the area, is a nectar feeder common in brushy habitats.

Mammals

The temperate forests and wetlands of the Puget Sound lowlands support a wide variety of mammals. They are observed less frequently than birds, however, due to their secretive and nocturnal habits.

Aside from marine mammals, a total of 51 species of mammals may inhabit the area. The most common and abundant are the small mammals, including shrews, moles, rabbits and small rodents. These mammals are terrestrial, generally nocturnal and secretive. Small mammals are an important food source for the larger mammals and predatory birds.

Bat communities in western Washington are poorly known. Up to seven species of bats are expected to be found in the forest habitats and to feed in open areas above the wetlands. Most of these bats are insect eaters and feed in the air at night.

Several of the larger rodents are the most conspicuous mammals present in the area. Squirrels and chipmunks are common in the various forest communities, where they feed on conifer seeds and other plant material. The northern flying squirrel, which is nocturnal and seldom seen during the day, typically inhabits mature and old-growth coniferous forests but may be found in the mixed and coniferous forests in the vicinity. A "gray" squirrel, most likely the introduced eastern gray, has also been reported for the vicinity, but is more typically found in urban areas and manicured parks.

The mountain beaver, while seldom seen, constructs numerous burrows in the forested area and leaves distinctive evidence of browsing on shrubs and conifers. Muskrats, which typically inhabit wetland and riparian areas, have been reported by local observers. Porcupines are also expected to inhabit a variety of upland and wetland habitats in the area.

Fifteen species of carnivores are expected to occur in the vicinity. Coyotes have become well adapted to more urbanized areas and are found within many suburban residential areas. Red foxes, introduced from the east coast of the U.S., are common in lowlands of the Olympic Mountains and Kitsap Peninsula. Other, smaller carnivores, such as skunks, weasels, raccoons and mink, are widespread and common in the lowlands of western Washington. These species are most common in wetland habitats and around lakes where they feed on small mammals, reptiles and amphibians and prey on ground- and shrub-nesting birds. River otters are known to use the Port Ludlow Bay marsh north of Paradise Bay Road.

Larger carnivores, including the bobcat, black bear, and mountain lion, are likely to inhabit the area. Bear are present in the region and may use the area as a portion of their home range.

The Columbian black-tailed deer (a state game species) is widely reported from the area, although no "concentration areas" are known in the vicinity. Deer are herbivores that browse mainly on shrubs and trees in the clearcuts, forests and wetlands; they also eat herbaceous material when available. As this area contains a variety of clearcut and forested habitats in close proximity, deer are expected to do well.

Marine mammals in the Port Ludlow Bay area are described in the Port Ludlow Marina Expansion SEIS (Reid Middleton, 2002a).