

**PROSPECTUS
FOR THE CITY OF OCEAN SHORES WETLAND
MITIGATION BANK**

**WEATHERWAX PROPERTY
OCEAN SHORES, WASHINGTON**

**Prepared for:
Interagency Review Team**

**Kate Thompson, IRT Co-Chair
Washington Department of Ecology
PO Box 47600
Olympia, Washington 98504-7600**

**Gail Terzi, IRT Co-Chair
US Army Corps of Engineers
PO Box 3755
Seattle, Washington 98124-3755**

Prepared by:

**Alicia Bridges, City Planner
Ocean Shores, Washington**

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1.0 INTRODUCTION

The City of Ocean Shores proposes to preserve and protect the property known as the Weatherwax Property which is approximately 120 acres located within the city limits of Ocean Shores, Grays Harbor County, Washington. The property contains a diverse mature forest, Category I depressional wetlands, a portion of Duck Lake, and Category III lake-fringe wetlands. This property is generally in a natural state, with minor exceptions as noted in Section 3, undeveloped and with no signs of past logging. The property is the only parcel of significant size left within the City of Ocean Shores ("the City") that reflects a natural functioning ecosystem of the Ocean Shores Peninsula including wetlands, mature vegetation, and wildlife habitat.

In accordance with Washington Administrative Code 173-700, a proposed wetland mitigation bank is the method the City wishes to use to accomplish the preservation of this property. The bank would be publicly owned and managed by the City of Ocean Shores.

Banking Goal:

Protect, preserve and enhance existing rare urban open space providing critical environmental, ecological and habitat functions and benefits.

Banking Objectives:

- Preserve and protect wetlands, hydraulic functions, aquifer, wildlife habitat and natural ecosystem.
- Retain an urban open space area, with protected ecological functions.
- Allow passive uses, including environmental education, using existing foot trails.
- Provide mitigation compensation for unavoidable wetland impacts associated with other property development and improvement within the proposed Service Area.

The site supports diverse species of fish and wildlife populations. Preservation of this site will enhance and preserve the dynamic and self-sustaining environment that provides breeding, feeding, rearing, and migration areas for those species.

1.1 Site Location

The proposed wetland mitigation bank is located in Grays Harbor County, Section 11, Township 17N, Range 12W. The site is in Water Resource Inventory Area (WRIA) 22. The property is one tax parcel (Parcel Number 617121121000) of approximately 120 acres. It is in the heart of the City surrounded by residential and commercial parcels. It is located approximately four miles south of the City entrance, south of Ocean Lake Way and Overlake Street. See Figures 1 and 2.

1.2 Ownership and Legal Restrictions

The Weatherwax property is owned by the City of Ocean Shores, PO Box 909, Ocean Shores, WA 98569. There are no liens against the property. There is a utility easement for overhead use only that runs north to south through the large western portion of the parcel. This is used by Grays Harbor PUD for construction and maintenance of existing distribution and transmission lines. The original document dated June 1962 (Figure 3) indicates the easement is for a single line of poles to be located approximately 50 feet westerly of the Coast Guard Telephone Line. The easement has a dirt access road with a locked metal gate at each end. Used in conjunction with Figure 2 this easement is shown in context of the whole property.

The Weatherwax Property Mitigation Bank site is within local jurisdiction of the City of Ocean Shores, Washington. The proposed Mitigation Bank will comply with all federal, state and local regulatory requirements, policies and guidance issued for wetland mitigation banks.

1.3 Landscape Position and Geomorphology

The Weatherwax site is in the approximate middle of the Ocean Shores Peninsula on the shores of Duck Lake (Figure 1.) The Peninsula is bordered on the west by the Pacific Ocean and the east by Grays Harbor. A relict 10-12 foot sand berm indicative of a possible past shoreline runs north to south through the western portion of the site. The central location of the Weatherwax property provides an important wildlife stepping stone between the Oyehut, Duck Lake, and Ocean Shores Airport Wildlife Areas and the forest environment to the north of the city.

The Ocean Shores, Grays Harbor North Bay Peninsula was formed mostly by accretion. Grays Harbor is an estuarine bay. It formed at the end of the last ice age, when sea levels flooded the Chehalis River. The Peninsula is approximately 5100 acres, an eight square mile area, with six miles of ocean front, seven miles of bay front and twenty six miles of lake and canal frontage. The freshwater-saltwater biological associations provide habitat for a large variety of waterfowl, songbirds, shorebirds and invertebrate life.

1.4 Current Land Use

Current county zoning of the site is undeveloped land; City zoning maps show it as R1, single family residential. Use is limited to walking access on rough cut trails in the western portion, as shown in Figure 4. There is an entrance from Overlake Street marked by a sign board and archway. It is also possible to walk around the easement gates. There are no buildings, structures or existing mitigation sites currently located on the property.

Approximately half of the property borders are adjacent to Duck Lake. There is currently no improved access to the land portions of the property from the lake.

The boundaries of the eastern and central sections and the southwest boundary are zoned R1, single-family housing, and are a mix of developed and undeveloped lots. The north and west adjacent land uses include a Grays Harbor Public Utility District substation, the Elks Club, the radio station, the Public Works shop/yard and Water Treatment Plant, 19 acres of undeveloped land, a church, and the elementary school.

City stormwater from adjacent areas flows into Duck Lake or the Grand Canal through the storm drain system, not through the Weatherwax property. Education and site monitoring can protect the property from encroachment issues by adjacent parcels.

1.5 Land Use History

Today's adjacent property uses are a matter of history. The property known now as Weatherwax was purchased by A.M. Abel, a land investor, in 1945. Prior ownership records show it had not been part of the cattle ranch which was on the Peninsula in previous decades. Mr. Abel deeded the property to his daughter Marian Weatherwax in 1954. In the 1960's when developers were planning Ocean Shores, Marian Weatherwax would not sell her property to them. It remained as undeveloped land not included in city planning. Because Ocean Shores was developed as a fully platted town, lots were laid out all around the edges of the Weatherwax property.

This layout of the city is one of the reasons the site qualifies as an Urban Growth Area as defined by the Biodiversity Area/Corridor priority habitat in the Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species List.

In the late 1990's, the Weatherwax family put the property up for sale and in 1999 the City purchased the property to protect the City's aquifers and as an investment.

2.0 SITE SELECTION

2.1 Proposed Service Area

The proposed Service Area for the Weatherwax Mitigation Bank includes projects with wetland impacts located within the corporate city limits of Ocean Shores (Figure 5.)

The proposed wetland mitigation bank will provide compensation for projects within the Service Area that impact aquatic resources where onsite mitigation is not feasible and/or environmentally preferable. There are many small commercial and residential lots that cannot be developed in compliance with land use designations without impacting wetlands or wetland buffers. Because of the platting, there are scattered small wetlands of lower quality that might cross lot lines or have buffers that cross lot lines, and the City

needs a way to mitigate those areas if they cannot be avoided, or have impacts minimized. The potential for improving wetland functions in these situations and areas is low because of building density. Many of these properties are in areas zoned for commercial development.

2.2 Site Selection Rationale

The Weatherwax property includes the last remaining large, natural undeveloped piece of land in the City. It contains diverse forest vegetation and habitat, rare and irreplaceable Category I Mature Forested Wetlands, Lake-Fringe Wetlands and a part of Duck Lake. The three land portions of the property are bordered by the lake. This property provides needed urban open space and wildlife habitat. It provides biological and hydrologic connectivity.

The site of approximately 120 acres would be preserved in its naturally evolving state to provide important ecological functions. It offers high probability for successful wetland preservation on a large scale. The resources to be preserved within this parcel will contribute to the ecological sustainability of the aquifer. It is a self-sustaining environment of which preservation will provide open space and breeding, feeding, rearing, and migration areas for fish and wildlife.

The parcel could be under threat of destruction or adverse modifications by development if not preserved and protected. In the past ten years, some or all of the Weatherwax property has been considered as a City Park with amenities, as a marina, for sale, for housing development, for wide asphalt trails to replace foot trails, for subdivision into four parcels, and for golf course holes with a surrounding lighted asphalt trail. The R1 zoning with no platting also leaves land use open for interpretation.

Fragmented lower quality wetlands and buffers can be mitigated as needed with high quality contiguous wetlands and uplands by preserving and protecting the Weatherwax property as a mitigation bank. Instead of providing on site mitigation on small lots with little chance of improving wetland function or protection, there is opportunity to protect high value wetlands that would otherwise be in danger from development. A mitigation bank would preserve high quality wetlands and ecological functions, thus providing an overall increase in wetland functions.

2.3 Application of Mitigation Bank Location Guidelines

The proposed area meets applicable check list criteria using Wetland Mitigation in Washington State – Part 2, Appendix J check list.

2.4 Land Use Compatibility

Establishing this site with a designation as a wetland mitigation bank would be compatible with the current Comprehensive Plan and Critical Areas Ordinance as well as other City regulations.

3.0 PHYSICAL DESCRIPTION OF THE PROPERTY

3.1 Overview

Traversing the 120 acre Weatherwax property from east to west reveals an 11 acre area of mature forest, approximately 29 acres of Duck Lake in the middle of which is an 8 acre peninsula (known as "the Point") of mixed scrub-shrub and forest with 1427 linear feet of Category III lake-fringe wetlands. The Point was primarily created by dredging of Duck Lake in the early 1970's. Continuing west of Duck Lake is 2640 linear feet of Category III lake-fringe wetlands, then approximately 20 acres of mature forest increasing 10-12 feet in elevation to a relict sand berm. To the west is a utility easement of approximately 2 acres running north and south. West of the easement the mature forest continues for about 50 more acres with a gradual decrease in elevation to the west property line. There are over 17 acres of Category I depressional wetlands in this section of mature forest.

The property is part of a mature interdunal wetland with upland mosaic areas. It contains characteristics of two of WDFW's defined Priority Habitats. (1) Old Growth/Mature Forest: wetland delineators describe the wetlands as mature-forested, thus Category I; the site has a variety of tree species, multi-layered canopy, variety of undergrowth, snags and downed logs; a citizen survey of 50 large Sitka Spruce and Western Hemlock trees, easily accessible from the foot trails, showed a range of 28 to 52 inches breast height diameter. (2) Biodiversity Area/Corridor: The property has the characteristics of subsection (b) Urban Growth Area. In addition, it might qualify for at least two of the Washington Department of Natural Resources Natural Heritage Program habitats: low elevation freshwater wetlands, and Western Hemlock/Salal. A summary from an independent biologist's survey of the site is included as Appendix Exhibit 1a, followed by sample site pictures taken by various photographers (Exhibits 1b and 1c.)

3.2 Wetlands

In 2006 (revised 2007) AMEC Earth & Environmental, Inc. (AMEC) delineated the west and the Point portions of the Weatherwax property and did a reconnaissance on the east portion. The resulting report indicates that there are approximately 17.38 acres of wetlands on the western portion of the site, lake-fringe wetlands along the west and Point, and very few if any wetlands on the eastern portion of the site. The area of Duck Lake which is within the site boundary covers approximately 28.84 acres.

Wetland types present on the site are Category I and III as classified by Cowardin et al 1979. AMEC identified 20 depressional wetlands rated Category I mature forested on the western portion of the site. The shoreline of the west portion and the shoreline of the

Point were defined as Category III lacustrine wetlands. Reconnaissance of the eastern portion indicated that there may be no jurisdictional wetlands outside of the shoreline of Duck Lake. A wetland delineation will need to be performed to establish baseline conditions in this area.

The wetland community types on the west portion are palustrine forest (PFO.) The majority of the smaller wetlands cover less than approximately 1/10th acre each with two medium-sized wetlands covering about 1/2 and 1.3 acres. One large wetland covers more than 15 acres on the property and extends off the property boundaries to the west. Some of the wetlands are hydrologically connected through the shallow groundwater table. Water sources for the wetlands are shallow groundwater and precipitation. No surface water flow was discerned within or out of these wetlands. The western shoreline is a lacustrine limnetic unconsolidated bottom (L1UB) system consisting of a sandy shore with overhanging trees and shrubs.

The wetland community types on the Point are palustrine emergent wetland (PEM) and palustrine aquatic bed (PAB.) The Category III rating is primarily due to the narrow width of the shoreline vegetation. This is an area of possible future enhancement to Category II lacustrine wetlands.

Figure 6 shows the AMEC delineation sketch and the size of each of the 20 depressional wetlands west of the PUD easement. Used in conjunction with Figure 2 they can be seen in perspective of the whole property.

The USFWS National Wetlands Inventory for the area identifies one PEM1A wetland system just west of the property and the Duck Lake system, identified as L1UBKHx.

3.3 Soils

The Grays Harbor County Area Soil Survey identifies soils on the Weatherwax property as Netarts Fine Sand (92), a very deep, well drained soil found on old stabilized sand dunes, and Udipsamments (146) a very deep, excessively drained soil found in depressional areas. Soil samples were obtained by digging pits or extracting soil cores to a depth of 15 to 18 inches. Of the 47 sample plots that AMEC tested, 27 were found to be hydric. Of those, 24 were wetlands and 3 were uplands.

3.4 Vegetation

Wetland vegetation on the PFO systems are mostly Sitka spruce (*Picea sitchensis*) with an understory of Pacific bayberry (*Myrica californica*), salmonberry (*Rubus spectabilis*), evergreen huckleberry (*Vaccinium ovatum*) and slough sedge (*Carex obnupta*).

Upland trees on the site are a mature forest of Sitka spruce (*Picea sitchensis*), cascara (*Rhamnus purshiana*), western hemlock (*Tsuga heterophylla*), and red alder (*Alnus*

rubra). The understory includes salal (*Gaultheria shallon*), salmonberry, false lily-of-the valley (*Maianthemum dilatatum*), sword fern (*Polystichum munitum*), red elderberry (*Sambucus racemosa*), red huckleberry (*Vaccinium parvifolium*), bracken fern (*Pteridium aquilinum*), and slough sedge.

The Point vegetation differs from the other upland areas because it was disturbed by the expansion of Duck Lake during the development of Ocean Shores. Most trees are rooted on the inland area. Herbaceous vegetation is dominated by slough sedge, common cattail (*Typha latifolia*), and water-parsley (*Oenanthe sarmentosa*). The canopy includes red alder, Douglas spirea (*Spirea douglasii*) and salal.

Appendix Exhibit 2 summarizes vegetation indicator status and abundance reported by AMEC on the Weatherwax property.

In the fall of 2006 a Professor from Evergreen College brought his Mycology class to do a survey of mushrooms on the site. Appendix Exhibits 3a and 3b show the mushroom species identified.

3.5 Wildlife

In several trips 2006-2008, spring and winter, the Grays Harbor and Seattle Audubon Societies identified birds on the Weatherwax property. Appendix Exhibits 4a and 4b are a compilation of the lists documented on those trips plus photos by various photographers. Eight species (noted in Exhibit 4a with *) are on the WDFW Priority Habitat and Species List.

Examples of other wildlife observed on the site include black-tailed deer, black bear, cougar, coyotes, raccoons, opossum, squirrels, chipmunks, mice, beaver, muskrats, nutrias, otters, bats, salamanders, frogs, turtles, garter snakes, slugs, bees, wasps, ants, and countless insects including an annual spring mosquito bloom.

3.6 Duck Lake

Duck Lake was a shallow brushy dunal lake that was dredged and enlarged in the 1960's when the town of Ocean Shores was formed. Water sources are a ditch that drains wetlands in the Oyehut development to the north, precipitation, and stormwater runoff from the surrounding land. The lake is approximately six miles long. Depth varies from about 10 to 40 feet. The lake's water level is kept stable by the presence of an outflow weir at the south end of the lake (Figure 7, item 6) which empties excess water into the North Bay of Grays Harbor. The Weatherwax property lies roughly across the center of the lake. There are two public boat launches on the east side of the lake (Figure 7, items 4 and 5.) Private docks are allowed on lakefront lots. There is currently no improved access to the land portions of the Weatherwax property from Duck Lake.

Speed limits on the widest part of the lake are 25-35 mph, but in many places they are slowed to "Create No Wake" to protect the shorelines. Approaching the east side of the Point, speed limits slow to 5 mph due to a low bridge on Overlake Street. There is little or no motorized boat traffic on the west side of the Point as it is a dead-end narrow lagoon. This land/water formation pushes most of the boat traffic to the northeast side of the lake. Because of a similar land formation south of the site, most of the boat traffic is on the southwest side of the lake.

Fish found in the lake include Yellow Perch, Black Bass, Crappie, Blue Gill, stocked Trout and stocked sterile Grass Carp.

4.0 SITE PROTECTION , MANAGEMENT, and MAINTENANCE

4.1 Site Protection

The City shall grant and record an appropriate protection mechanism, such as a conservation easement, to dedicate in perpetuity the property constituting the bank for credit. The ownership and long-term strategy for the bank will remain with the City of Ocean Shores.

A vote of the citizens in November 2008 advised the City Council to retain the Weatherwax property as a natural resource. On March 9, 2009 the Council passed Resolution 610 directing City Administration to proceed with actions necessary to preserve the Weatherwax property, including designation as a wetland mitigation bank and habitat preserve.

The City will manage the site in accordance with the Site Management Plan. The City would monitor any and all activity on the site by periodically doing walkthroughs and drive-by inspections. The function of the wetlands would not be allowed to be manipulated in any way by the public or the City.

It has been discussed in the past that the City may install new well sites adjacent to the proposed site. This would only be considered if there was no potential for adverse affects or draw down of the existing wetlands in the vicinity of these potential wells. This determination would be made by a hydrologist.

4.2 Site Management and Maintenance

Management and maintenance includes all activities and actions necessary to ensure the continued successful ecology of the site wetlands and uplands. This includes but is not limited to the following activities:

- a) Developing a Site Management and Maintenance plan such as, but not limited to, irrigation, control of invasive species, and phased plantings as required;

- b) Regular monitoring of the site as described in the monitoring plan for the bank as required by state and federal rule;
- c) Ongoing maintenance activities required during the operational life of the bank as specified in the bank instrument. For example, a bank may require regular control of invasive species or maintenance of a water control structure;
- d) Implementation of contingency actions, if required;
- e) Repair due to vandalism;
- f) Litter control;
- g) Trail maintenance as allowed by the Banking Instrument; and
- h) Monitoring of the bank site including:
 - i. Document the initial baseline conditions at the bank site at the time of banking;
 - ii. Document the condition of the bank site as it continues to evolve over time;
 - iii. Document the attainment of performance standards as appropriate;
 - iv. Provide early identification of problems during the site's evolution to trigger potential contingency actions; and
 - v. Prevent encroachment or damage from adjacent parcels through education and enforcement

Currently, volunteers under the direction of the Public Works Department perform such tasks as litter control, trail maintenance, invasive weed removal, monitoring for vandalism, and public education. Those activities will continue and possibly expand to include groups such as non-profits, Scouts, and high school and college science students.

4.3 Site Design Team

Because the site is already a functioning wetland and habitat, there will be no changes or restructuring of the area. There will be no wetland design effort required or need for a design team. However, it is possible that in the future the Point could be a wetland enhancement site.

The City Planner, Alicia Bridges, or her successor, will be the person in charge of monitoring the service area with assistance from the Public Works Director and other city employees. There will be no public access trails created other than those already existing on the easterly portion of the larger parcel on the west side of Duck Lake.

Alicia Bridges has been employed by the City of Ocean Shores for more than 20 years and has been the City Planner for the past four years. She has attended classes such as

“Designing Compensatory Mitigation and Restoration Projects” as well as having been in charge of all environmental related permits and reviews.

Ken Lanfear, Public Works Director has been employed with the City of Ocean Shores for five years. His experience includes 27 years with the Washington State Department of Transportation, and 21 years as a Public Works Director. He has extensive experience with environmental design, evaluation, permitting and oversight, for both private development and public facilities, including roads and highways, well fields, and water and wastewater treatment facilities.

5.0 Mitigation Banking Instrument Plan

5.1 Professional Consultants

The City issued a Request for Qualifications for wetland mitigation banking consultants and received 15 responses. A Selection Review Committee was formed and each of the responses was evaluated and scored. Three top scoring qualifiers were selected to be interviewed. The city expects to use these or other qualified professionals for tasks including but not limited to wetland delineation of the east parcel, site surveys, and identification of any old growth forest on the site.

5.2 City Team

A city mitigation banking team has been established under the direction of the Mayor of Ocean Shores. The team is composed of city staff members from the Ocean Shores Interpretive Center and the Planning Department, a City Council liaison, and two citizen representatives. The team will be supported by the Public Works Director, Finance Director, and any other City staff as needed.

The team leader is Neil Eldridge, the Director of the Ocean Shores Interpretive Center, a well regarded and popular natural history museum. He has degrees in Forest Management and Forest Engineering, has worked for the United States Forest Service and the Bureau of Indian Affairs, and in those positions has collaborated with the United States Department of Fish and Wildlife and the Environmental Protection Agency, as well as other government agencies.

The purpose of this team is to identify and outline the requirements for a preservation Mitigation Banking Instrument (MBI), through work with the IRT, State RCWs and WACs, sample documents, research, and data already gathered.

6.0 SUMMARY

The City of Ocean Shores believes the best way to preserve and protect the 120 acre Weatherwax property is through the establishment of a wetland mitigation bank. The site is of high quality, meeting the requirements for a preservation bank. Having a bank established will also assist in processing building permits more efficiently when there are unavoidable low quality wetlands in the Service Area. The City looks forward to working with the IRT as this project continues.

References

City of Ocean Shores GIS Mapping

City of Ocean Shores Storm Drain Map

City of Ocean Shores Zoning Map

Grays Harbor County Area Soil Survey

Grays Harbor County Land Ownership Records

Jurisdictional Data Analysis, AMEC Earth & Environmental, Inc., 2006 (Revised 2007)

USFS National Wetlands Inventory Map (www.fws.gov/wetlands/data/Mapper.html)

WAC Chapter 173-700, Wetland Mitigation Banks

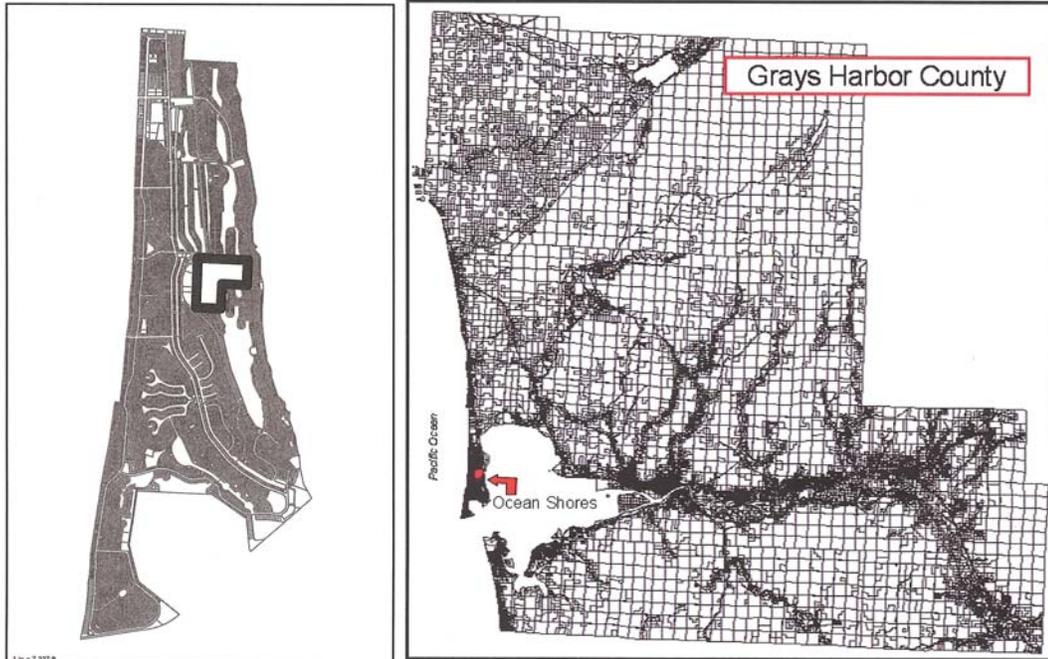
WDFW Priority Habitat and Species list (<http://wdfw.wa.gov/hab/phslist.htm>)

WDNR National Heritage Program Plan
(<http://www1.dnr.wa.gov/nhp/refdesk/lists/communitiesxco/grays.html>)

Wetland Mitigation in Washington State,
Part 2: Developing Mitigation Plans, Appendix J
(<http://www.ecy.wa.gov/pubs/0606011b.pdf>)

FIGURES

Project Site Vicinity Map Grays Harbor County



 Proposed Bank Site

FIGURE 1 -- Weatherwax Property Within Grays Harbor County and Ocean Shores

	<p>City of Ocean Shores P.O. Box 909 - Ocean Shores, WA 98569 (360) 289-2754 - Fax # (360) 289-2022</p>	<p>This map prepared by the City of Ocean Shores Engineering Department G.I.S. / July 17, 2009</p>
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Ocean Shores Wetland Mitigation Banking Prospectus

Project Site Vicinity Map
Neighborhood

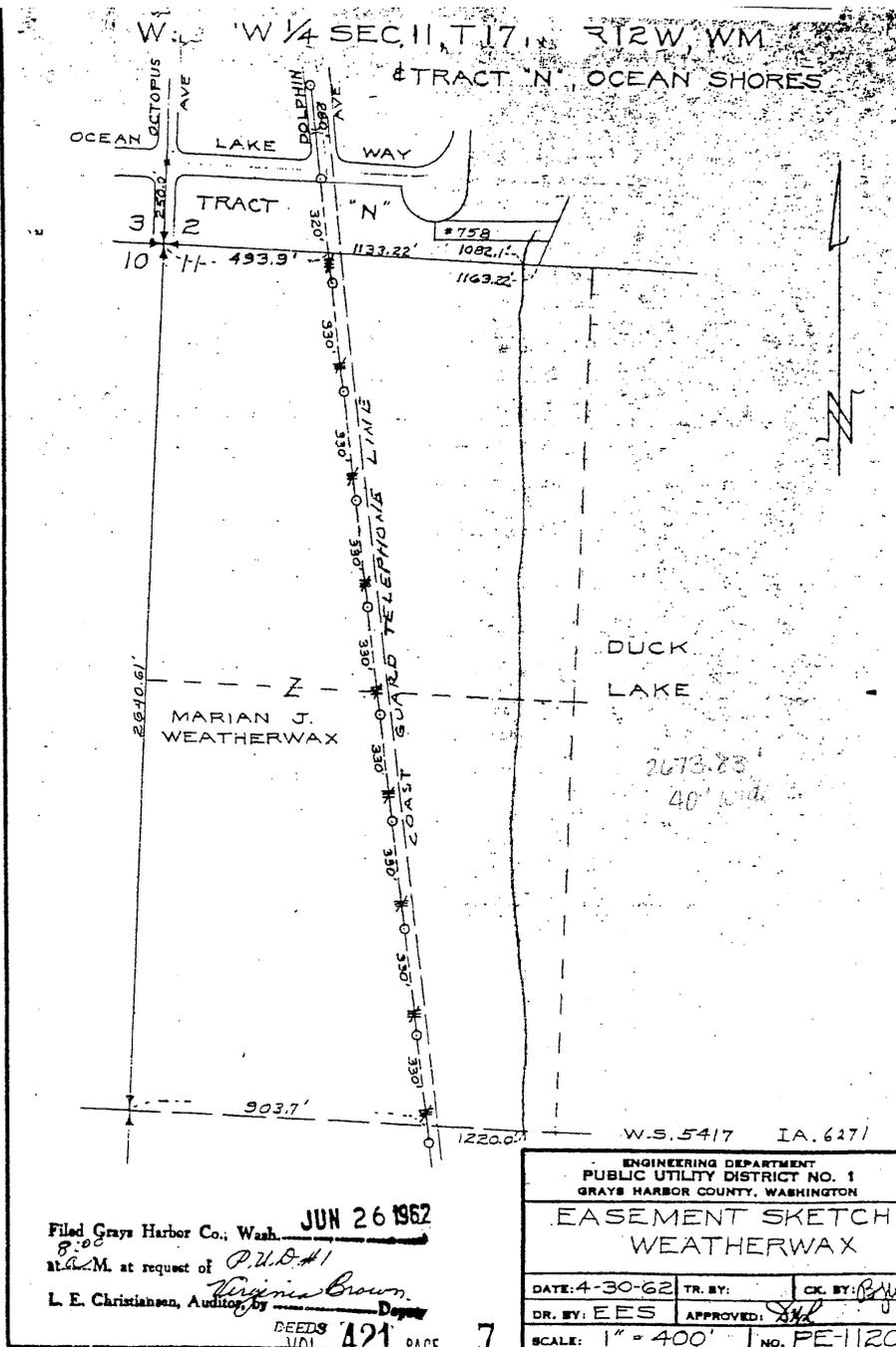
1 in = 500 ft



FIGURE 2 -- Weatherwax Property, Wetland Areas, and Easement

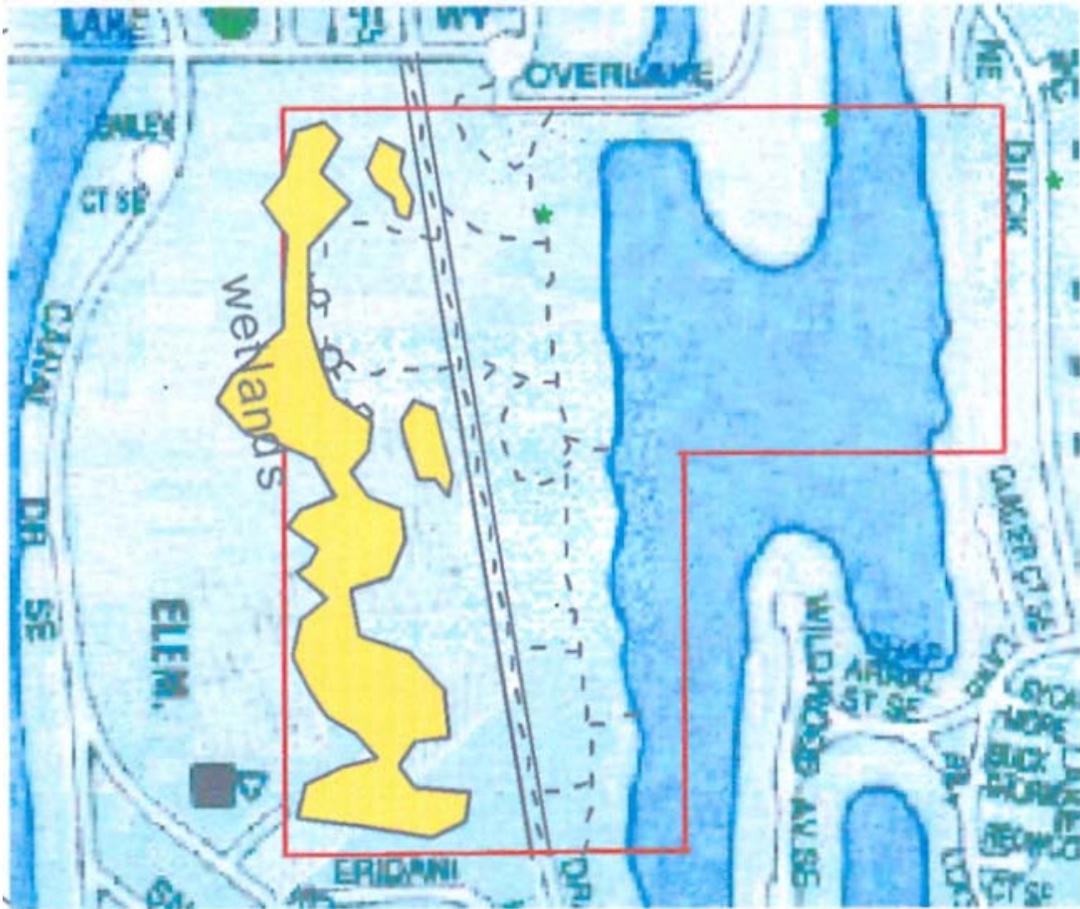
	<p>City of Ocean Shores P.O. Box 909 - Ocean Shores, WA 98569 (360) 289-2754 - Fax # (360) 289-2022</p>	<p>This map prepared by the City of Ocean Shores Engineering Department G.I.S. / July 17, 2009</p>	<p><input type="checkbox"/> Proposed Bank Site</p> <p> Mitigated Wetlands</p>
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Ocean Shores Wetland Mitigation Banking Prospectus



City of Ocean Shores
Wetland Mitigation Banking
Prospectus

FIGURE 3
PUD Easement Sketch



- - - Trails
 ——— Property Boundary
 wetlands are approximate and not all shown

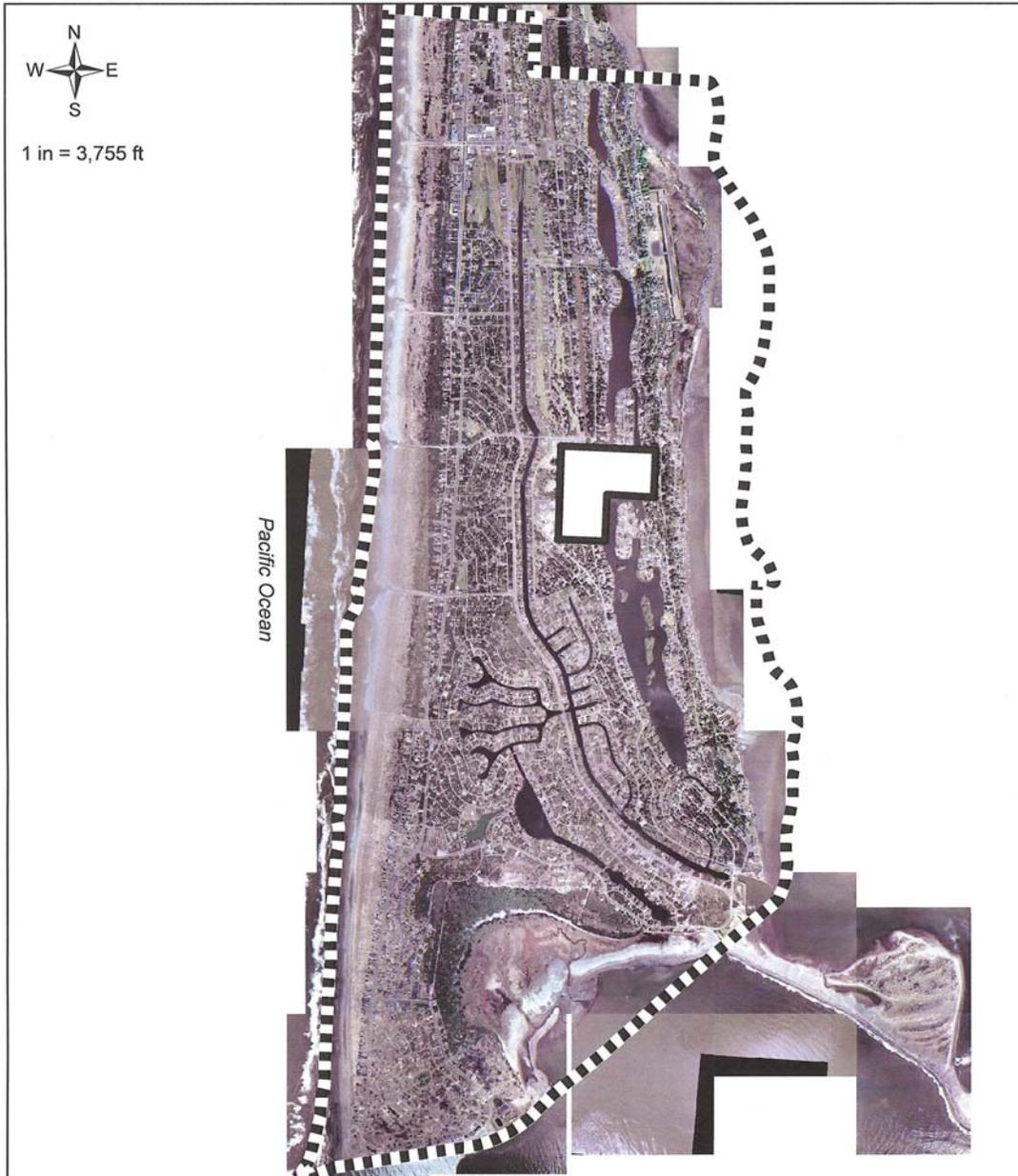
City of Ocean Shores
 Wetland Mitigation Banking
 Prospectus

FIGURE 4
 Weatherwax Trails

Project Site Vicinity Map Ocean Shores Proposed Service Area



1 in = 3,755 ft



City of Ocean Shores
P.O. Box 909 - Ocean Shores, WA 98569
(360) 289-2754 - Fax # (360) 289-2022

This map prepared by the
City of Ocean Shores
Engineering Department
G.I.S. / July 17, 2009

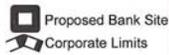
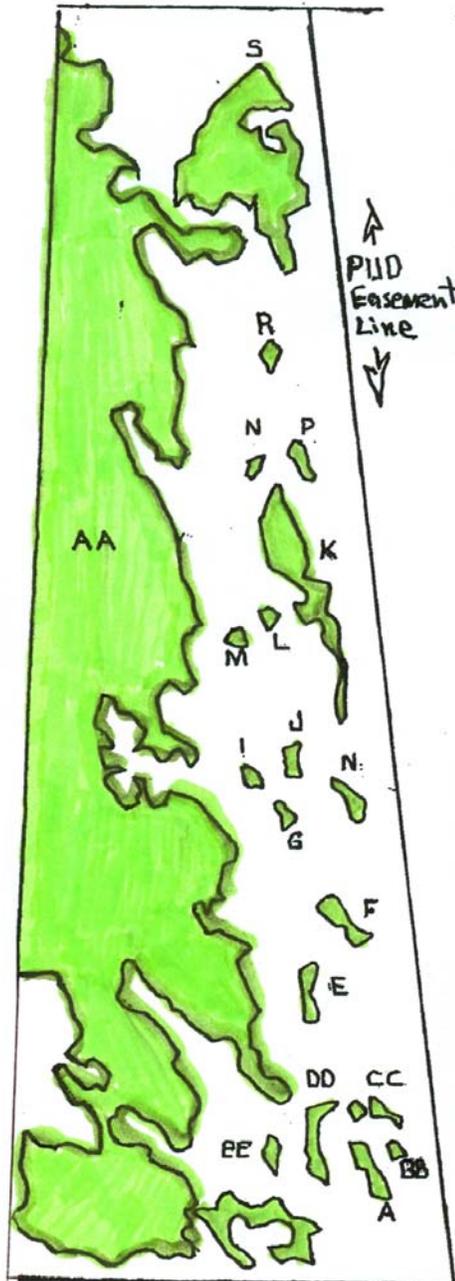


FIGURE 5 -- Proposed Service Area

Ocean Shores Wetland Mitigation Banking Prospectus



Weatherwax Wetland Mitigation Bank

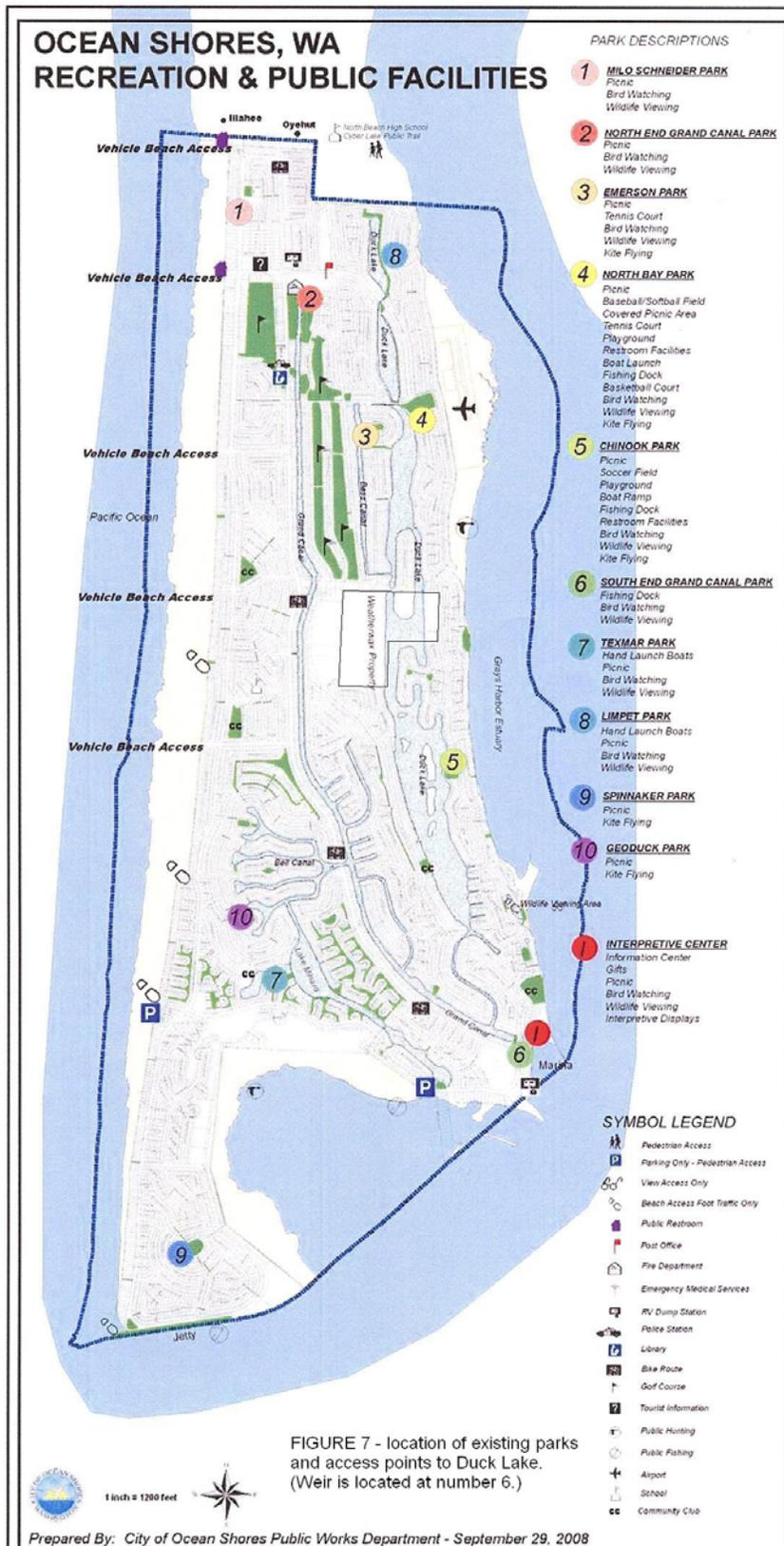
Jurisdictional Wetland Analysis
AMEC Earth & Environmental, Inc.
February 26, 2006

Summary of Delineated Wetland Areas

Wetland	Size (acres)	Rating ¹⁷
A	0.06	1
B	0.12	1
C	Shoreline	
D	Shoreline	3
E	0.05	1
F	0.09	1
G	0.01	1
H	0.03	1
I	0.01	1
J	0.03	1
K	0.47	1
L	0.01	1
M	0.01	1
N	0.01	1
P	0.04	1
R	0.03	1
S	1.29	1
AA	14.97	1
BB	0.09	1
CC	0.02	1
DD	0.01	1
EE	0.03	1

City of Ocean Shores
 Wetland Mitigation Banking
 Prospectus

FIGURE 6 -- Delineated Wetland Areas
 This is only a portion of the proposed site. A full delineation will be completed prior to final approval of the project



APPENDIX

Weatherwax Flora and Fauna

EXHIBIT 1a

Weatherwax Ecosystem Survey

May, 2008

By Janet Strong, professional botanist/ecologist

The portion of land with the oldest forest, between the power line road and Duck Lake, possesses the characteristics of an old-growth forest. This alone exhibits the natural history of the Ocean Shores peninsula, as well as providing habitat for animals needing large trees, and the upper canopy. That area, as well as the portions to the west of the power line road and to the east of Duck Lake, contain forest stands of great plant diversity. When you have a large variety of native plants, you attract a large variety of wildlife, from birds (a recent bird survey of the Weatherwax acreage found 77 different species of birds), to large and small mammals, to amphibians like salamanders, to butterflies and other insects. The "snags" or dead and dying trees and downed logs are present in all three zones. These critical features of a healthy forest provide homes and food to a surprisingly large number of wild creatures, including woodpeckers, squirrels, bats, raccoons, many small birds, ducks and other species. (50 different birds and mammals in western Washington depend on snags for their necessary habitat.)

The pocket wetlands and the larger wetland along the western edge would be very important for the area's amphibians (salamanders, frogs and toads), especially in the spring during their concentrated reproductive period. Their greening up early in the spring provides a much-needed food supply to browsers such as deer. Another point to consider is the fact that all the small wetlands and the long, large one are most likely connected to each other hydrologically, with the water table being a short distance below the ground. The ground is hummocky and the low spots with wetland vegetation are "lenses" where the high water table is exposed on the surface. Disturbances like ditching or channeling in one section could have deleterious effects on the larger natural system.

The vertical structure, from the ground-hugging forbes, to shrubs, to younger trees and finally overstory shade trees, logs and snags, provide a multitude of nesting, resting, feeding and hiding places for the area's wildlife. Although the "point" jutting out into Duck Lake is much younger and contains some non-native plant species, its plant composition, especially the food plants beneath the trees, add even more diverse places for wildlife to the mix.

Tying the whole system together is Duck Lake, sitting right in the middle of all these various forest types. Open water is an important component for animals residing in the adjacent forest and nearby forests are critical for some water-dependent wildlife. The open water and its wetland edges complement and complete the natural system.

EXHIBIT 1b, Sample Weatherwax Photos

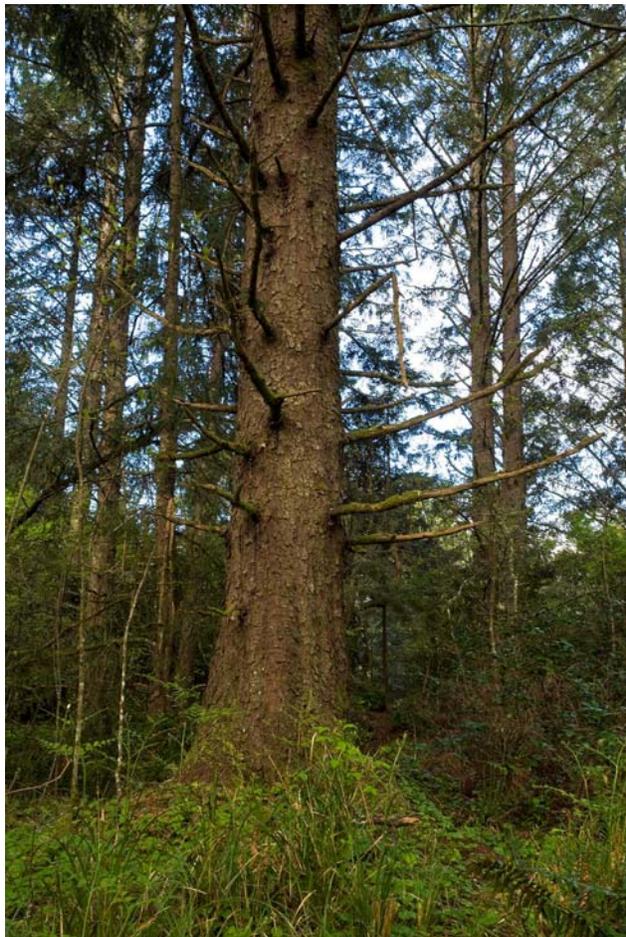


EXHIBIT 1c, Sample Weatherwax Photos



EXHIBIT 2, Weatherwax Vegetation

Table A-1 Observed Plant Species and Species Abundance at the Weatherwax Property

Common Name (Scientific Name)	Indicator Status ^{1/}	Abundance ^{2/}
Trees		
red alder (<i>Alnus rubra</i>)	FAC	O
Sitka spruce (<i>Picea sitchensis</i>)	FAC	D
cascara (<i>Rhamnus purshiana</i>)	FAC-	C
western hemlock (<i>Tsuga heterophylla</i>)	FACU	C
Shrubs		
salal (<i>Gaultheria shallon</i>)	FACU	D
black twinberry (<i>Lonicera involucrata</i>)	FAC	O
Pacific crabapple (<i>Malus fusca</i> = <i>Pyrus fusca</i>)	FACW	C
Pacific bayberry (<i>Myrica californica</i>)	FACW	D
salmonberry (<i>Rubus spectabilis</i>)	FAC+	D
Hooker willow (<i>Salix hookerana</i>)	FACW	C
red elderberry (<i>Sambucus racemosa</i>)	FACU	O
Douglas' spiraea (<i>Spirea douglasii</i>)	FACW	O
evergreen huckleberry (<i>Vaccinium ovatum</i>)	UPL	D
red huckleberry (<i>Vaccinium parvifolium</i>)	FACU	O
Herbs		
skunk cabbage (<i>Lysichiton americanum</i>)	OBL	O
false lily-of-the-valley (<i>Maianthemum dilatatum</i>)	FAC	D
yellow cow-lily (<i>Nuphar luteum</i> ssp. <i>polysepalum</i>)	OBL	O
water-parsley (<i>Oenanthe sarmentosa</i>)	OBL	O
common cattail (<i>Typha latifolia</i>)	OBL	O
Rushes		
soft rush (<i>Juncus effusus</i>)	FACW	O
Sedges		
slough sedge (<i>Carex obnupta</i>)	OBL	D
Ferns and Horsetails		
field horsetail (<i>Equisetum arvense</i>)	FAC	O
sword fern (<i>Polystichum munitum</i>)	FACU	C
bracken fern (<i>Pteridium aquilinum</i>)	FACU	O

¹ Reed (1988, 1993) separates vascular plants into the following basic groups according to their "wetland indicator status" based on each species' frequency of occurrence in wetlands: obligate wetland plants (OBL) occur almost always in wetlands (estimated probability >99 percent) under natural conditions; facultative wetland plants (FACW) occur almost always in wetlands (estimated probability 67–99 percent), but occasionally are found in nonwetlands; facultative plants (FAC) are equally likely to occur in wetlands or nonwetlands (estimated probability 34–66 percent); facultative upland plants (FACU) usually occur in nonwetlands (estimated probability 67–99 percent), but occasionally are found in wetlands (estimated probability 1–33 percent); obligate upland plants (UPL) occur almost always in nonwetlands under natural conditions (estimated probability >99 percent).

² D=dominant; C=common; O=occasional; F=few; R=rare

EXHIBIT 3a, Weatherwax Mushrooms

Preliminary List of Macrofungi Collected at the Weatherwax Property, Ocean Shores, Washington by Professor Steve Trudell and his 30 mycology students

Monday 13 November 2006

The Fungal Kingdom Program, The Evergreen State College.

Steve Trudell has been photographing, identifying, and studying the biology and ecology of mushrooms and other fungi for over 30 years. He has taught mycology, botany, and ecology/environmental science courses at The Evergreen State College, University of Washington, Seattle University, and Bastyr University, and frequently delivers lectures and conducts educational workshops for local, regional, and national mycological societies. Steve has served as vice president of the North American Mycological Association (NAMA) and president of the Pacific Northwest Key Council; currently, he is Chair of NAMA's Literature Committee and a member of the Education and Photography committees.

Steve is interested in the reasons behind, and controls on, fungal biodiversity. Why are there so many different kinds of mushrooms, and what are they all doing? His PhD research explored the use of stable isotope signatures for studying the roles of ectomycorrhizal and saprotrophic fungi in nitrogen and carbon cycling in old-growth forests on the Olympic Peninsula.

These are the latin scientific names of the fungi collected and identified in the laboratory by the Evergreen students from all over the U.S. Many students were amazed to see such things as they don't exist outside a Rain Forest. You can google these names on the Internet and see what they look like and read about their characteristics and life cycle. Any questions contact "OSCBG Email address" OceanShoresCBG@yahoo.com

1. *Agaricus subrutilescens*
2. *Amanita francheti*
3. *Amanita muscaria*
4. *Armillaria "mellea"*
5. *Armillaria ostoyae*
6. *Ascocoryne sarcoides*
7. *Boletus (Xerocomus) zelleri*
8. *Clavaria purpurea*
9. *Clavulina cristata*
10. *Clitocybe clavipes*
11. *Clitocybe/Lepista* sp.
12. *Collybia bakerensis*?
13. *Collybia dryophila*
14. *Coprinus atramentarius (=Coprinopsis atramentaria)*
15. *Coprinus micaceus (=Coprinnellus micaceus)*
16. *Cortinarius* sp. 1 (Subgenus Dermocybe)
17. *Cortinarius* sp. 2 (Subgenus Dermocybe)
18. *Cortinarius* sp. 3 (Subgenus Telamonia)
19. *Cortinarius* sp. 4 (Subgenus Telamonia)
20. *Cortinarius* sp. 5 (Subgenus Telamonia)
21. *Cortinarius traganus/pyriodorus*
22. *Cortinarius vanduzerensis*
23. *Galerina marginata (=G. autumnalis)*
24. *Gomphidius subroseus*
25. *Guepiniopsis (Heterotextus) alpina*
26. *Gymnopilus* sp.
27. *Hebeloma* sp. 1
28. *Hebeloma* sp. 2
29. *Hebeloma* sp. 3
30. *Hydnum repandum*
31. *Hygrocybe conica (=Hygrophorus conicus)*
32. *Hygrophorus* sp. (*H. eburneus* or *H. piceus*)
33. *Hygrophorus agathosmus*
34. *Hygrophorus olivaceoalbus*
35. *Hypholoma capnoides*
36. *Hypholoma marginatum*
37. *Hypomyces lactifluorum*
38. *Laccaria* sp.
39. *Lactarius "deliciosus"*
40. *Lactarius pseudomucidus*
41. *Lactarius scrobiculatus*
42. *Lactarius* sp. (Subgenus Russularia)
43. *Lycoperdon* sp.
44. *Lyophyllum decastes* (very pale form)
45. *Mycena epipterygia*
46. *Mycena pura*
47. *Otidea* sp.
48. *Panellus longinquus*
49. *Phellodon atratus*
50. *Pholiota terrestris*
51. *Russula brevipes*
52. *Russula* sp. (red-capped)
53. *Stropharia ambigua*
54. *Tricholoma focale (=T. zelleri; =Armillaria zelleri)*
55. *Tricholoma sejunctum*
56. *Tricholoma virgatum*
57. *Xylaria hypoxylon*

EXHIBIT 3b, Sample Weatherwax Photos



EXHIBIT 4a

Birds on Weatherwax Property

Loons, Grebes

Common Loon
Pied-billed Grebe
Horned Grebe
*Western Grebe

Cormorants

*Brandt's Cormorant
Double-Crested Cormoran

Wading Birds

*Great Blue Heron

Geese and Ducks

Canada Goose
*Wood Duck
American Wigeon
Mallard
Northern Pintail
Green-Winged Teal
Canvasback
Ring-Necked Duck
Greater Scaup
Lesser Scaup
Surf Scoter
*Bufflehead
*Common Goldeneye

Diurnal Raptors

Osprey
*Bald Eagle
Sharp-Shinned Hawk
Cooper's Hawk
Merlin
Peregrine Falcon

Gulls and Terns

Ring-billed Gull
Western Gull
Glaucous Winged Gull
Caspian Tern

Pigeons

*Band-Tailed Pigeon

Owls

Great Horned Owl
Barred Owl

Hummingbirds

Anna's Hummingbird
Rufous Hummingbird

Kingfishers

Belted Kingfisher

Woodpeckers

Downy Woodpecker
Hairy Woodpecker
Northern Flicker

Vireos

Hutton's Vireo

Jays and Crows

Steller's Jay
Crow species

Swallows

Tree Swallows
Violet-green Swallow

Chickadees

Black-Capped Chickadee
Chestnut-Backed Chickadee
Bushtit

Nuthatches and Creepers

Red-breasted Nuthatch
Brown Creeper

Wrens

Bewick's Wren

Winter Wren

Marsh Wren

Kinglets and Thrushes

Golden-crowned Kinglet
Ruby-crowned Kinglet
Swainson's Thrush
Hermit Thrush
American Robin
Varied Thrush

Starlings

European Starling

Waxwings

Cedar Waxwing

Wood-Warblers

Orange-crowned Warbler
Yellow-rumped Warbler
Townsend's Warbler
Wilson's Warbler

Sparrows and Towhees

Spotted Towhee
Fox Sparrow
Song Sparrow
White-crowned Sparrow
Golden-crowned Sparrow
Dark-eyed Junco

Blackbirds

Red-winged Blackbird

Finches

Purple Finch
House Finch
Red Crossbill
Pine Siskin
American Goldfinch
House Sparrow

* = Washington Department of Fish and Wildlife Priority Species

EXHIBIT 4b, Sample Weatherwax Photos

