Queens Bog: Site Assessment Report

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Prepared by Rob Anderson and Nelson Salisbury, EarthCorps

OVERVIEW

On April 23, 2015, we visited Queens Bog and the surrounding Native Growth Protected Areas (NGPAs) at the request of the Klahanie Association. The purpose of this visit was to assess and identify plant species and wildlife found in this area. The 60+-acre swath of undeveloped land that includes Queens Bog is located on the north edge of the Klahanie development, immediately south of SE 32nd St, in unincorporated King County near Sammamish, WA. These areas include parcels belonging to King County Parks and Recreation and Native Growth Protected Areas belonging to the Klahanie Association. At the center of this undeveloped tract is a wetland of approximately 16 acres, surrounded by approximately 45 acres of upland coniferous second-growth forest. The Klahanie Association maintains a pedestrian trail through the upland forest of the Queens Bog NGPA, though there is no official access to the wetlands.

The upland forest surrounding Queens Bog on all sides is similar to other second-growth conifer upland forests found throughout Klahanie's NGPAs. This forest ecosystem is remarkably intact and healthy, with vigorous native plant communities and high structural diversity. The forest overstory is dominated by Douglas fir (*Pseudotsuga menziesii),* with occasional other coniferous and deciduous trees. A wide variety of native regenerating trees, shrubs, and groundcovers are found in the understory. Common species include Indian plum (*Oemlaria cerasiformis)*, salal (*Gaultheria shallon*), salmonberry (*Rubus spectabilis)*, and sword fern (*Polystichum munitum).* A few non-native invasive species are also present, including blackberry (*Rubus bifrons)* and yellow archangel (*Lamiastrum galeobdolon).* Due to the tremendous diversity of plant species found in the upland forest,

we did not attempt to make a complete inventory. In general terms, the forest conditions here closely resemble those found at the nearby Yellow Lake NGPA. For further discussion characterizing this forest type, please refer to the Yellow Lake NGPA Vegetation Management Plan (EarthCorps, 2012).

The wetland at the center of the undeveloped tract, on the other hand, represents a unique habitat type not found elsewhere at Klahanie, and only rarely found in western Washington. Approximately seven acres at the center of the wetland is dominated by species characteristic of *Sphagnum*-dominated peatlands, better known as sphagnum bogs. *Sphagnum* is a genus of mosses that grows in a thick dense layer, forming spongy hummocks over the ground, and creating an acidic wetland environment that supports a unique community of native plant and invertebrate species not found outside of the sphagnum bog ecosystem. These bogs are rare, comprising only about three percent of total wetlands in King County, and are one of the most ancient ecosystems in the Pacific Northwest. In addition to their intrinsic value as a unique ecosystem, peat bogs serve essential functions including filtering and slowing stormwater, absorbing excess nutrients, and sequestering carbon dioxide from the atmosphere. (Kulzer et al, 2001). Unfortunately, peat harvesting and urban development pressures have led to the destruction, draining and filling of many sphagnum bogs throughout the region. The remaining sphagnum bogs are a high priority for conservation and protection in western Washington. (For more information on sphagnum bogs, please refer to the additional resources below, and especially Kulzer et al, 2001.)

In addition to the sphagnum bog and surrounding upland conifer forest, a few other ecosystem types are also found at Queens Bog. The bog itself is surrounded by a band of scrub-shrub wetlands around the perimeter. An area of open water is found on the west side of the bog, and is likely the result of excavation for the installation of the natural gas pipeline which cuts across the bog from north to south. At the east end of the bog, a higher-elevation forested “island” features species more similar to those found in the upland conifer forest that surrounds the wetland.

Listed below are the plant and animal species we observed at Queens Bog, grouped by ecosystem type. As noted above, we did not attempt to inventory plant species found in the upland forest due to the tremendous diversity present there.

Overall, the vegetative conditions at Queens Bog indicate a generally healthy and functioning wetland system. No invasive species were observed growing in the wetland with relatively low occurrence of non-native species noted in the upland edges (primarily in the vicinity of the existing gas pipeline). These species include Himalayan and cut leaf blackberry, Scotch broom, English ivy, and bugleweed. Some species noted in the *Sphagnum* bog area are not necessarily typical of acidic bog conditions (and may be indicative of nutrification and/or rising pH levels). These species were more prominent in the east end of the bog and include Douglas fir and common rush.

SPECIES LISTS

Bog ecosystem

Common name	Scientific Name	Frequency	Notes
Mosses and liverworts (multiple species)	*Sphagnum sps*. (several), *Pleurozium schreberi, Polytrichum strictum*, *Mylia anomala,* and others	Found throughout (varies by species)	*Polytrichum strictum* classified as "imperiled" by Washington Natural Heritage Program: "at high risk of extirpation in the state due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors"
Labrador tea	*Rhododendron groenlandicum*	Found throughout	Also mixes with hardhack on bog edge of scrub-shrub wetland
Bog laurel	*Kalmia microphylla*	Found throughout	
Bog cranberry	*Vaccinium oxycoccus*	Found throughout	Delicious!
Western hemlock	*Tsuga heterophylla*	Common, sparse cover	Very stunted
Douglas fir	*Pseudotsuga menziesii*	Common, sparse cover	Mainly in east end of bog
Small fruited bulrush	*Scirpus microcarpus*	Occasional	Patchy
Reindeer lichen	*Cladonia mitis*	Occasional	Patchy
Mushroom lichen	*Lichenomphalia umbellifera*	Occasional	Sporadic on decaying wood
Other lichens	Including additional *Cladonia sps.*	Occasional	Sporadic
Rush (unknown)	*Juncus sp.*	Occasional	
Common rush	*Juncus effusus*	Infrequent	East end of bog
Sundew	*Drosera rotundifolia*	Infrequent	Found in two separate locations at east and west ends of bog. Difficult to find due to small size but likely can be found throughout.

Scrub-shrub wetland

Hardhack	*Spiraea douglasii*	Found throughout	Monocultural

Forest edge (transition from upland forest to scrub-shrub wetland)

Scouler's willow	*Salix scouleriana*	Common	Also found on edges of open water pond
Sitka willow	*Salix sitchensis*	Common	Also found on edges of open water pond
Hardhack	*Spiraea douglasii*	Common	Also found on edges of open water pond

Western crabapple	*Malus fusca*	Common	
Twinberry	*Lonicera involucrata*	Occasional	
Cascara	*Rhamnus purshiana*	Occasional	
Swamp rose	*Rosa pisocarpa*	Occasional	
Quaking aspen	*Populus tremuloides*	Occasional	Few stands near east end of bog
Highbush cranberry	*Viburnum edule*	Occasional	

Open water pond and wetland edge

Yellow pond-lily	*Nuphar lutea*	Common	
Cattail	*Typha latifolia*	Common	

Upland forest "island"

Douglas fir	*Pseudotsuga menziesii*		
Salal	*Gaultheria shallon*		
Sword fern	*Polystichum munitum*		
Serviceberry	*Amelanchier alnifolia*		
Pacific dogwood	*Cornus nutallii*		
Bird Cherry	*Prunus avium*		*Non-native*

Wildlife:

Note: bird species likely vary widely throughout the year due to seasonal migrations.

Mallard duck			
Bushtit			
Robin			Not seen – song heard in forest fringe adjacent to bog
Chickadee			Not seen – song heard in forest fringe adjacent to bog
Ruby crowned kinglet			Not seen – song heard in forest fringe adjacent to bog
Junco			Not seen – song heard in forest fringe adjacent to bog
Common garter snake			
Frog (unidentified)			
Coyote			Not seen – evidence including scat, trails, den

REFERENCES AND FURTHER READING

Queens Bog and Klahanie area-specific:

University of Washington wetland ecology (EHUF 475) students. "Queen's Bog". 1999. http://courses.washington.edu/emergent/reports/1999/group2%20%281999%29/grp2_1999.htm

Ervin, Keith. "Disappearing Bogs" The Seattle Times. July 1996. http://community.seattletimes.nwsource.com/archive/?date=19960716&slug=2339404

EarthCorps. *Yellow Lake NGPA at Klahanie: Vegetation Management Plan.* EarthCorps, 2012. Available upon request from EarthCorps staff, www.earthcorps.org

Wetlands and bogs general resources:

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Lane, R.C. and William Taylor. "Washington's Wetland Resources". U.S. Geological Survey, 1996. http://wa.water.usgs.gov/pubs/misc/wetlands/

National Audobon Society. "Guide to Wetlands Protections". http://www.audubon.org/sites/default/files/documents/wetlands_guide.pdf

SHADOW. "What is a bog?" and "Why is it important?" http://shadowhabitat.org/Learn/Whatisabog