

Mary Lake Property, Highlands District Vegetation Values

by Ecologist Hans Roemer, Phd.
based on a survey on September 22, 2010



General Observations

The Mary Lake property is representative for the local diversity, showing nearly all habitat types that occur overall in the Highlands. It has a large number of different habitats and a large number of vascular plant species within them. The lake itself has acquired typical shoreline aquatic vegetation and several man-made earth- and concrete works created to retain the water are well greened-in and nearly invisible, giving the impression of a natural lake. Introduced plant species are present, but not in higher numbers than in the general Highlands landscape.



Among rare occurrences are 1) a remnant wetland with Vancouver Island aspen and many species associated with its community type that has become rare, 2) the occurrence of California hazel, a shrub with restricted occurrence on southern Vancouver Island, and 3) an occurrence of the rare (CDC-Blue-listed) mountain sneezeweed (*Helenium autumnale* var. *grandiflora*).

Regarding possible future management of the vegetation resources on this property, it is recommended to pay particular attention to the impact of a high deer population, as over-browsing and grazing is quite evident on many of the preferred species and may threaten their long-term survival.

Aquatic Habitats

These have by far the least diverse species combination, with yellow pond lily, cattail and floating pondweed dominating. This is easily explained by the artificial origin of the lake and its relatively young age, compared with the habitats that existed originally in the area. However, thorough exploration by boat would probably yield other species not obvious to this brief survey.



Wetlands

These exhibit the greatest species diversity of all examined habitats, as there are numerous different plant communities that occur in the wet portions of the property. There are also all possible transitions between streamside and wetland habitats and between permanently and seasonally wet areas. Nearly the only common denominator is the occurrence of hardhack (*Spiraea douglasii*). The depression south of the garden area has the most interesting species combination, with a few remaining Vancouver Island aspen, hardhack, Pacific crabapple, slough sedge, skunk cabbage (to name just a few dominants; compare species list). This combination originally occurred in many wetlands on southern Vancouver Island, but is now rare, mainly due to early conversion into agricultural land.



Streamsidess

Streamside vegetation is also highly variable, depending on the soil substrate and the gradient of the stream course. Where good drainage prevails, western redcedar, and red alder form the canopy, salmonberry, ninebark and other shrubs (see table) form the shrub layer, and sword fern is the dominant ground cover. With less perfect drainage, skunk cabbage becomes an important co-dominant with sword fern. It is to be noted that salmonberry is under increasing pressure by deer browsing and will gradually disappear as dominant. Low-gradient streamsidess have fewer western red cedars and acquire willow species as trees/shrubs, and loose sword fern where they grade into wetlands. Streamside communities are equally diverse as wetlands.



Open Douglas-fir Forest

This is another highly variable habitat type, depending on soil substrates. Shallow soils over bedrock are the main reason for the somewhat discontinuous canopy, but former logging also played a role. Co-dominant trees are grand fir and sometimes western red cedar (here only in the lower tree layer). The principal shrub is ocean spray, sometimes accompanied by saskatoon. The lower shrub layer is composed of discontinuous salal and dull Oregon-grape. There is a variety of herbaceous ground vegetation and/or a vigorous moss cover. Remarkable is the occurrence of California hazel, a shrub that has a very restricted occurrence on southern Vancouver Island.

Closed (-canopy) Douglas-fir Forest

This is the least diverse of all forest habitats and is almost exclusively composed of trees, Douglas-fir, grand fir and western redcedar. Remnants of a former shrub layer occur, with salal and dull Oregon-grape. Herbaceous plants are nearly absent. A dense moss layer is usually present, dominated by *Eurhynchium oregonum*. Over shallow soils *Hylocomium splendens* and *Rhytidiadelphus triquetrus* also occur, the same mosses that are more dominant in some open Douglas-fir forests.



Douglas-fir / Arbutus Hilltops

Arbutus occurs with scattered Douglas-firs on very shallow soils of hilltops. These are the only habitats where Arbutus will persist indefinitely, even though it may now also occur as scattered individuals in the open Douglas-fir forest. Consistent shrubs are ocean spray and tall Oregon-grape. Moss layers of *Rhytidiadelphus triquetrus* are usually present. The herb layer in this habitat type is depleted by former and present grazing, as it would normally contain white fawn lily of which no remnants were found (springtime surveys would be needed to confirm this).



Rock Outcrop Habitats

Like the one described above, this habitat type is considerably disturbed by a history that has probably involved heavy domestic grazing, now perpetuated by high deer populations. Open rocky hilltops of this nature should normally have native grasses and luxuriant moss/lichen growth. Very little of this remains and the small areas of this habitat are occupied mainly by introduced grasses and weeds.



Mountain sneezeweed (*Helenium autumnale* var. *grandiflora*) is a rare plant in British Columbia and particularly on Vancouver Island. It is on the “**Blue-list**” of the BC Conservation Data Centre. Unfortunately, the growing site in the Mary Lake property is disturbed and infested with thistles.

Preliminary list of vascular plant species

(Notes: Non-native species are designated by an asterisk following the scientific name. To obtain separate lists of the species combination of each of the names habitats, sort table contents by the respective habitat column)

Scientific Name	Common Name	Aquatic Habitats	Wetlands	Streamside	Douglas Fir Forest Open	Douglas Fir Forest Closed	Douglas Fir/ Arbutus Hilltops	Rock Outcrops Habitats
<i>Abies grandis</i>	Grand fir			x	x	x		
<i>Acer macrophyllum</i>	Big-leaf maple			x	x			
<i>Adenocaulon bicolor</i>	Trail finder				x			
<i>Adiantum aleuticum</i>	Maidenhair fern			x				
<i>Agrostis stolonifera</i> *	Creeping bentgrass							
<i>Alisma triviale</i>	Water plantain	x						
<i>Alnus rubra</i>	Red alder		x	x				
<i>Amelanchier alnifolia</i>	Saskatoon				x			
<i>Anaphalis margaritacea</i>	Perly everlasting							
<i>Anthoxanthum odoratum</i> *	Sweet vernalgrass						x	x
<i>Arbutus menziesii</i>	Arbutus						x	
<i>Athyrium filix-femina</i>	Ladyfern		x	x				
<i>Bromus vulgaris</i>	Columbia brome				x			
<i>Callitriche (palustris?)</i>	Spring water-starwort	x						
<i>Carex deweyana</i>	Dewey's sedge			x				
<i>Carex hendersonii</i>	Henderson's sedge			x				
<i>Carex obnupta</i>	Slough sedge		x					
<i>Carex utriculata</i>	Beaked sedge		x					
<i>Cirsium arvense</i> *	Canada thistle							
<i>Cirsium vulgare</i> *	Bull thistle							
<i>Clematis vitalba</i> *	Traveler's joy							
<i>Clinopodium douglasii</i>	Yerba buena				x			
<i>Cornus nuttallii</i>	Pacific dogwood				x			
<i>Cornus stolonifera</i>	Red-osier dogwood		x	x				
<i>Corylus cornuta var. californica</i>	Californian hazel				x			
<i>Cytisus scoparius</i> *	Scotch broom							
<i>Dactylis glomerata</i> *	Orchard grass							
<i>Digitalis purpurea</i> *	Foxglove							
<i>Dryopteris expansa</i>	Spiny woodfern			x				
<i>Eleocharis palustris</i>	Common spike-rush	x						
<i>Elymus glaucus</i>	Western wild-rye						x	x
<i>Epilobium ciliatum (s.l.)</i>	Purple-leaved willowherb							
<i>Equisetum arvense</i>	Common horsetail		x					
<i>Festuca occidentalis</i>	Western fescue				x		x	
<i>Festuca rubra</i> *	Red fescue						x	x
<i>Festuca subuliflora</i>	Crinkle-awned fescue				x			
<i>Fragaria vesca</i>	Wood strawberry						x	
<i>Galium trifidum</i>	Small bedstraw		x					
<i>Gaultheria shallon</i>	Salal			x	x	x		
<i>Geranium molle</i> *	Dove-foot geranium							x
<i>Geranium robertianum</i> *	Herb Robert							
<i>Glyceria elata</i>	Tall mannagrass		x					
<i>Helenium autumnale var. grandiflora</i>	Mountain sneezeweed		x					
<i>Heuchera micrantha</i>	Asmall-flowered alumroot						x	x
<i>Hieracium albiflorum</i>	White hawkweed						x	
<i>Holodiscus discolor</i>	Ocean spray				x		x	
<i>Hypericum anagalloides</i>	Bog St. John's wort		x					

