



P.O. Box 91053, West Vancouver, B.C., V7V 3N3, Canada

Wetland plants observed on Hollyburn Ridge, 2009.

Survey dates: July 13 and July 20
Terry Taylor.

First Lake:

| | |
|---|---------------------------|
| <i>Carex canescens</i> | Grey sedge |
| <i>Carex lenticularis</i> var. <i>lipocarpa</i> (<i>C. kelloggii</i>) | Kellogg's sedge |
| <i>Epilobium lactiflorum</i> | White-flowered willowherb |
| <i>Fauria crista-galli</i> (<i>Nephrophyllidium crista-galli</i>) | Deer-cabbage |
| <i>Gentiana sceptrum</i> | King gentian |
| <i>Hypnum dieckii</i> | a moss |
| <i>Kalmia microphylla</i> ssp. <i>occidentalis</i> (<i>K. polifolia</i>) | Western bog-laurel |
| <i>Lysichiton americanus</i> | Skunk cabbage |
| <i>Nuphar lutea</i> ssp. <i>polysepala</i> | Yellow pond-lily |
| <i>Philonotis fontana</i> | Swamp apple moss |
| <i>Platanthera stricta</i> (<i>Habenaria saccata</i>) | Slender rein orchid |
| <i>Rhytidiadelphus squarrosus</i> | Bent leaf moss |
| <i>Rubus spectabilis</i> | Salmonberry |
| <i>Sphagnum subtile</i> | a peat moss |
| <i>Spiraea splendens</i> ssp. <i>splendens</i> (<i>S. densiflora</i>) | Subalpine spirea |
| <i>Triantha occidentalis</i> ssp. <i>montana</i> (<i>Tofieldia glutinosa</i>) | Western false asphodel |
| <i>Veratrum viride</i> | Indian hellebore |
| <i>Viola palustris</i> var. <i>palustris</i> | Marsh violet |

First Lake is steep sided with only small patches of wetland vegetation.

Fish Pond Beside First Lake:

| | |
|---|----------------------------|
| <i>Agrostis aequivalvis</i> | Alaska bentgrass |
| <i>Carex canescens</i> | Grey sedge |
| <i>Carex lenticularis</i> var. <i>lipocarpa</i> (<i>C. kelloggii</i>) | Kellogg's sedge |
| <i>Carex pauciflora</i> | Few-flowered sedge |
| <i>Coptis asplenifolia</i> | Fern-leaved goldthread |
| <i>Drepanocladus exannulatus</i> | a moss |
| <i>Erigeron peregrinus</i> ssp. <i>callianthemus</i> | Subalpine daisy |
| <i>Eriophorum angustifolium</i> | Narrow-leaved cotton-grass |
| <i>Fauria crista-galli</i> (<i>Nephrophyllidium crista-galli</i>) | Deer-cabbage |
| <i>Kalmia microphylla</i> ssp. <i>occidentalis</i> (<i>K. polifolia</i>) | Western bog-laurel |
| <i>Menyanthes trifoliata</i> | Buckbean |
| <i>Nuphar lutea</i> ssp. <i>polysepala</i> | Yellow pond-lily |
| <i>Sphagnum papillosum</i> | a peat moss |
| <i>Sphagnum squarrosum</i> | a peat moss |
| <i>Sphagnum subtile</i> | a peat moss |
| <i>Spiraea splendens</i> ssp. <i>splendens</i> (<i>S. densiflora</i>) | Subalpine spirea |
| <i>Triantha occidentalis</i> ssp. <i>montana</i> (<i>Tofieldia glutinosa</i>) | Western false asphodel |
| <i>Trientalis europaea</i> ssp. <i>arctica</i> | Northern starflower |
| <i>Viola palustris</i> var. <i>palustris</i> | Marsh violet |

One of the *Sphagnum* patches had some mushrooms in the genus *Galerina*. These are a small brown species. The most common one in *Sphagnum* is *G. paludosa*. Buckbean is very common here, and was not seen at any of the other sites. This is possibly because the pond is artificial. It is a frequently seen species on lake edges at lower elevations.

Wetland plants observed on Hollyburn Ridge, 2009. (Continued)

Second Lake:

| | |
|---|----------------------------|
| <i>Carex nigricans</i> | Black alpine sedge |
| <i>Drepanocladus exannulatus</i> | a moss |
| <i>Erigeron peregrinus</i> ssp. <i>callianthemus</i> | Subalpine daisy |
| <i>Eriophorum angustifolium</i> | Narrow-leaved cotton-grass |
| <i>Fauria crista-galli</i> (<i>Nephrophyllidium crista-galli</i>) | Deer-cabbage |
| <i>Juncus filiformis</i> | Thread rush |
| <i>Lysichiton americanus</i> | Skunk cabbage |
| <i>Nuphar lutea</i> ssp. <i>polysepala</i> | Yellow pond-lily |
| <i>Polytrichum formosum</i> | a haircap moss |
| <i>Sphagnum subtile</i> | a peat moss |
| <i>Trientalis europaea</i> ssp. <i>arctica</i> | Northern starflower |

The dominant wetland plant at Second Lake is narrow-leaved cotton-grass (*Eriophorum angustifolium*). Deer-cabbage (*Fauria crista-galli*) is very common here and there are impressive populations of northern starflower (*Trientalis europaea* ssp. *arctica*) in the marsh on the north side of the lake.

Third Lake (Bo Lake):

| | |
|---|----------------------------|
| <i>Agrostis aequivallis</i> | Alaska bentgrass |
| <i>Carex canescens</i> | Grey sedge |
| <i>Carex lenticularis</i> var. <i>lipocarpa</i> (<i>C. kelloggii</i>) | Kellogg's sedge |
| <i>Drepanocladus exannulatus</i> | a moss |
| <i>Eriophorum angustifolium</i> | Narrow-leaved cotton-grass |
| <i>Fauria crista-galli</i> (<i>Nephrophyllidium crista-galli</i>) | Deer-cabbage |
| <i>Gymnocolea inflata</i> | a liverwort |
| <i>Juncus acuminatus</i> | Tapered rush |
| <i>Juncus ensifolius</i> | Dagger-leaf rush |
| <i>Juncus filiformis</i> | Thread rush |
| <i>Kalmia microphylla</i> ssp. <i>occidentalis</i> (<i>K. polifolia</i>) | Western bog-laurel |
| <i>Luetkea pectinata</i> | Partridge-foot |
| <i>Nuphar lutea</i> ssp. <i>polysepala</i> | Yellow pond-lily |
| <i>Pohlia nutans</i> | a moss |
| <i>Polytrichum formosum</i> | a haircap moss |
| <i>Sphagnum subtile</i> | a peat moss |
| <i>Triantha occidentalis</i> ssp. <i>montana</i> (<i>Tofieldia glutinosa</i>) | Western false asphodel |
| <i>Trientalis europaea</i> ssp. <i>arctica</i> | Northern starflower |
| <i>Veratrum viride</i> (<i>V. eschscholtzii</i>) | Indian hellebore |
| <i>Viola palustris</i> var. <i>palustris</i> | Marsh violet |

Many northern starflowers in the marsh on the north side of the ditch. The same *Galerina* species was seen in a *Sphagnum* patch here, also.

Fourth Lake:

| | |
|---|----------------------------|
| <i>Carex saxatilis</i> ssp. <i>laxa</i> (<i>C. physocarpa</i>) | Russet sedge |
| <i>Eriophorum angustifolium</i> | Narrow-leaved cotton-grass |
| <i>Fauria crista-galli</i> (<i>Nephrophyllidium crista-galli</i>) | Deer-cabbage |
| <i>Gentiana sceptrum</i> | King gentian |
| <i>Juncus filiformis</i> | Thread rush |
| <i>Kalmia microphylla</i> ssp. <i>occidentalis</i> (<i>K. polifolia</i>) | Western bog-laurel |
| <i>Nuphar lutea</i> ssp. <i>polysepala</i> | Yellow pond-lily |
| <i>Sphagnum subtile</i> | a peat moss |
| <i>Triantha occidentalis</i> ssp. <i>montana</i> (<i>Tofieldia glutinosa</i>) | Western false asphodel |
| <i>Viola palustris</i> var. <i>palustris</i> | Marsh violet |

Many gentians at Fourth Lake.

Wetland plants observed on Hollyburn Ridge, 2009. (Continued)

Fifth Lake:

| | |
|--|----------------------------|
| <i>Carex lenticularis</i> var. <i>lipocarpa</i> (<i>C. kelloggii</i>) | Kellogg's sedge |
| <i>Eriophorum angustifolium</i> | Narrow-leaved cotton-grass |
| <i>Gentiana sceptrum</i> | King gentian |
| <i>Kalmia microphylla</i> ssp. <i>occidentalis</i> (<i>K. polifolia</i>) | Western bog-laurel |
| <i>Luetkea pectinata</i> | Partridge-foot |
| <i>Nuphar lutea</i> ssp. <i>polysepala</i> | Yellow pond-lily |
| <i>Polytrichum formosum</i> | a haircap moss |
| <i>Sphagnum subtile</i> | a peat moss |

The marsh at this lake is small. Three gentian plants were seen.

Sixth Lake:

| | |
|---|----------------------------|
| <i>Caltha leptoccephala</i> var. <i>leptoccephala</i> | White marsh-marigold |
| <i>Carex lenticularis</i> var. <i>lipocarpa</i> (<i>C. kelloggii</i>) | Kellogg's sedge |
| <i>Carex nigricans</i> | Black alpine sedge |
| <i>Carex saxatilis</i> ssp. <i>laxa</i> (<i>C. physocarpa</i>) | Russet sedge |
| <i>Diphasiastrum sitchense</i> (<i>Lycopodium sitchense</i>) | Alaska club-moss |
| <i>Drepanocladus exannulatus</i> | a moss |
| <i>Erigeron peregrinus</i> ssp. <i>callianthemus</i> | Subalpine daisy |
| <i>Gentiana sceptrum</i> | King gentian |
| <i>Gymnocolea inflata</i> | a liverwort |
| <i>Jungermannia</i> or <i>Nardia</i> sp. | a liverwort |
| <i>Kalmia microphylla</i> ssp. <i>occidentalis</i> (<i>K. polifolia</i>) | Western bog-laurel |
| <i>Leptarrhena pyrolifolia</i> | Leatherleaf saxifrage |
| <i>Marsupella brevissima</i> | a liverwort |
| <i>Parnassia fimbriata</i> | Fringed grass-of-parnassus |
| <i>Polytrichum formosum</i> | a haircap moss |
| <i>Rubus spectabilis</i> | Salmonberry |
| <i>Sparganium angustifolium</i> | Narrow-leaved bur-reed |
| <i>Sphagnum subtile</i> | a peat moss |
| <i>Triantha occidentalis</i> ssp. <i>montana</i> (<i>Tofieldia glutinosa</i>) | Western false asphodel |
| <i>Trichophorum cespitosum</i> (<i>Scirpus cespitosus</i>) | Tufted clubrush |
| <i>Veratrum viride</i> (<i>V. eschscholtzii</i>) | Indian hellebore |
| <i>Viola palustris</i> var. <i>palustris</i> | Marsh violet |

Wetland plants observed on Hollyburn Ridge, 2009. (Continued)

The marsh at Sixth Lake is species rich. It is dominated by Kellogg's sedge (*Carex lenticularis* var. *lipocarpa*) and narrow-leaved cotton-grass (*Eriophorum angustifolium*). *Marsupella brevissima* is a liverwort of alpine seepage sites. It usually does not grow at this low an elevation, but is fairly common on the east side of Sixth Lake. On submerged rocks in the stream on the north side of the lake the caddisfly larvae were using an unusual material to construct their tubes. They are common in streams and lakes in Cypress Park and their tubes are composed of either sand grains or dead conifer needles. The larvae here had tubes made of liverwort leaves of the species growing on submerged rocks. This is either a *Jungermannia* or a *Nardia* species. The white marsh-marigold that was seen here has leaves longer than broad and keys out to *Caltha leptoccephala* var. *leptoccephala*. The more common variety in our area is var. *biflora*.

The lake edges and wetlands of Hollyburn Ridge between First Lake and Sixth Lake are sedge-dominated habitats typical of wetland sites at this elevation in the local mountains. The dominant species are Kellogg's sedge (*Carex lenticularis* var. *lipocarpa*) and narrow-leaved cotton-grass (*Eriophorum angustifolium*). Cotton-grass flats covered by myriads of white fluffy seed heads are one of the beauties of shallow wetlands in the coastal mountains. Several other sedges were also recorded on this survey. They include russet sedge (*Carex saxatilis*), grey sedge (*C. canescens*), black alpine sedge (*C. nigricans*), and tufted clubrush (*Trichophorum cespitosum*). Another species which forms extensive populations on some of the lake margins is thread rush (*Juncus filiformis*). All of the above plants are grass-like, wind pollinated species. Sedges, rushes and grasses are the most common plants of wetlands, where breezes readily disseminate pollen grains. Only one true grass, Alaska bentgrass (*Agrostis aequivalvis*), was located by this survey. Mountain hairgrass (*Vahlodea atropurpurea*), however, was seen just before First Lake.....

Deeper water is the domain of yellow pond-lily (*Nuphar lutea* ssp. *polysepala*), which is rooted on the lake bottom, and has leaves floating on the lake surface. Another floating-leaved species is narrow-leaved bur-reed (*Sparganium angustifolium*). It was only seen at Sixth Lake during this survey, but I remember finding it at one of the other lakes on previous occasions.

No blue- or red-listed plants were seen, but the numbers of king gentians (*Gentiana sceptrum*) on Hollyburn Ridge is exceptional. I have never seen them so prolific anywhere else. My recollection is that several decades ago they were only present at Blue Gentian Lake, and it would be an interesting exercise to locate any previous plant lists and ascertain if this is actually the case. King gentians now grow at many locations between Blue Gentian Lake and Sixth Lake. Although not actually a listed species in British Columbia, this gentian is by no means a frequently encountered species. It grows sporadically on lake edges in our area, usually at lower elevations than the sites at Hollyburn. The Hollyburn Ridge populations have many more plants than any others that I have seen or heard of. The beauty and rarity as well as the fragile nature of the gentian's habitat easily justify protecting the sites where it grows.

Probably due to its higher altitude and longer snow cover, Sixth Lake had several plants not seen at the lower lakes. White marsh-marigold (*Caltha leptoccephala*), leather-leaf saxifrage (*Leptarrhena pyrolifolia*), and fringed grass-of-parnassus (*Parnassia fimbriata*) were not recorded at the other sites. They are more commonly found in the subalpine. The small, blackish liverwort *Marsupella brevissima* forms dense patches on the east side of the lake. It is uncommon at this low an elevation, and is a species of late snow alpine sites, being common in Garibaldi Park. A perusal of UBC Herbarium records shows collections from Seymour, Grouse and Strachan, but none as low in elevation as Sixth Lake.

A number of attractive wildflowers grow in these marshy sites. The most notable are probably king gentian, yellow pond-lily, marsh violet (*Viola palustris*), bog laurel (*Kalmia microphylla*), northern starflower (*Trientalis europaea*), subalpine daisy (*Erigeron peregrinus*), marsh-marigold, and grass-of-parnassus.

These marshland sites show little disturbance and impact, unlike some similar lake edge sites on Black Mountain, and at Yew Lake, where the early successional sedge, tufted clubrush (*Trichophorum cespitosum*) has colonized the bare mud surfaces. The only clubrush seen at these lakes was a small cluster at Sixth Lake. It is advised that the lake edges be monitored in future and protective action taken if impact occurs.

Taxonomy for the vascular plants is based on The illustrated flora of British Columbia, with commonly used synonyms in brackets. The surveys were done on July 13 and July 20, 2009. More detailed surveys would very probably record additional species. Only wetland plants are listed, and not the species of the surrounding forest sites.

WETLAND PLANTS OBSERVED AT BLUE GENTIAN LAKE.

AUGUST 25, 2009.

Terry Taylor.

| | |
|---|----------------------------|
| <i>Agrostis aequivalvis</i> | Alaska bentgrass |
| <i>Aulacomnium palustre</i> | Glow moss |
| <i>Carex saxatilis</i> (<i>C. physocarpa</i>) | Russet sedge |
| <i>Coptis trifolia</i> | Three leaf goldthread |
| <i>Drosera rotundifolia</i> | Round-leaved sundew |
| <i>Eriophorum angustifolium</i> | Narrow-leaved cotton-grass |
| <i>Fauria crista-galli</i> (<i>Nephrophyllidium crista-galli</i>) | Deer-cabbage |
| <i>Gentiana sceptrum</i> | King gentian |
| <i>Kalmia microphylla</i> ssp. <i>occidentalis</i> (<i>K. polifolia</i>) | Western bog laurel |
| <i>Ledum groenlandicum</i> (<i>Rhododendron groenlandicum</i>) | Labrador tea |
| <i>Lysichiton americanus</i> | Skunk cabbage |
| <i>Menyanthes trifoliata</i> | Buckbean |
| <i>Nuphar lutea</i> ssp. <i>polysepala</i> (<i>N. polysepalum</i>) | Yellow pond-lily |
| <i>Polytrichum commune</i> | Common haircap moss |
| <i>Sphagnum henryense</i> | a peat moss |
| <i>Sphagnum subtile?</i> | a peat moss |
| <i>Spiraea splendens</i> ssp. <i>splendens</i> (<i>S. densiflora</i>) | Subalpine spirea |
| <i>Triantha occidentalis</i> ssp. <i>montana</i> (<i>Tofieldia glutinosa</i>) | Western false asphodel |
| <i>Trichophorum cespitosum</i> (<i>Scirpus cespitosus</i>) | Tufted clubrush |
| <i>Trientalis europaea</i> ssp. <i>arctica</i> | Northern starflower |

Blue Gentian Lake may be the original source for the gentian populations which now grow at a number of sites on Hollyburn Ridge. I do not remember them being at these other sites several decades ago. It would be worthwhile to get previous records concerning them. The UBC herbarium has several collections from Hollyburn Ridge collected during the 1940's and earlier. There is limited information on the database, but three of the collections are from Hollyburn. Hollyburn lakes - W. Taylor, 1915. Along West Lake trail - John Eastham, 1939. Around club house and ponds just below West Lake ski club - John Eastham, 1943. If the origin of the name Blue Gentian Lake can be ascertained it might also clarify things.

The rarest plant recorded at Blue Gentian Lake is *Coptis trifolia*. The only other sites in the lower mainland area seem to be those of Cypress Provincial Park. It is not listed as a rare plant for the province as it is common in the north, and such listings are based on a provincial level. On a regional level, however, it is an extreme rarity. There is a considerable amount of *Trichophorum cespitosum* beside the boardwalk. Its presence is an indication of the past history of the site. This is an early colonizer of impacted marshland sites in the coastal mountains. Before the boardwalk was constructed the trail here was essentially bare mud. The original vegetation has not had sufficient time to recolonize.